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ELEVENTH ANNUAL REPORT

OF THE

MANAGERS AND OFFICERS

OF THE

State Asylum for the Insane

AT

MORRISTOWN, N. J.,

For the Year Ending October 31st,

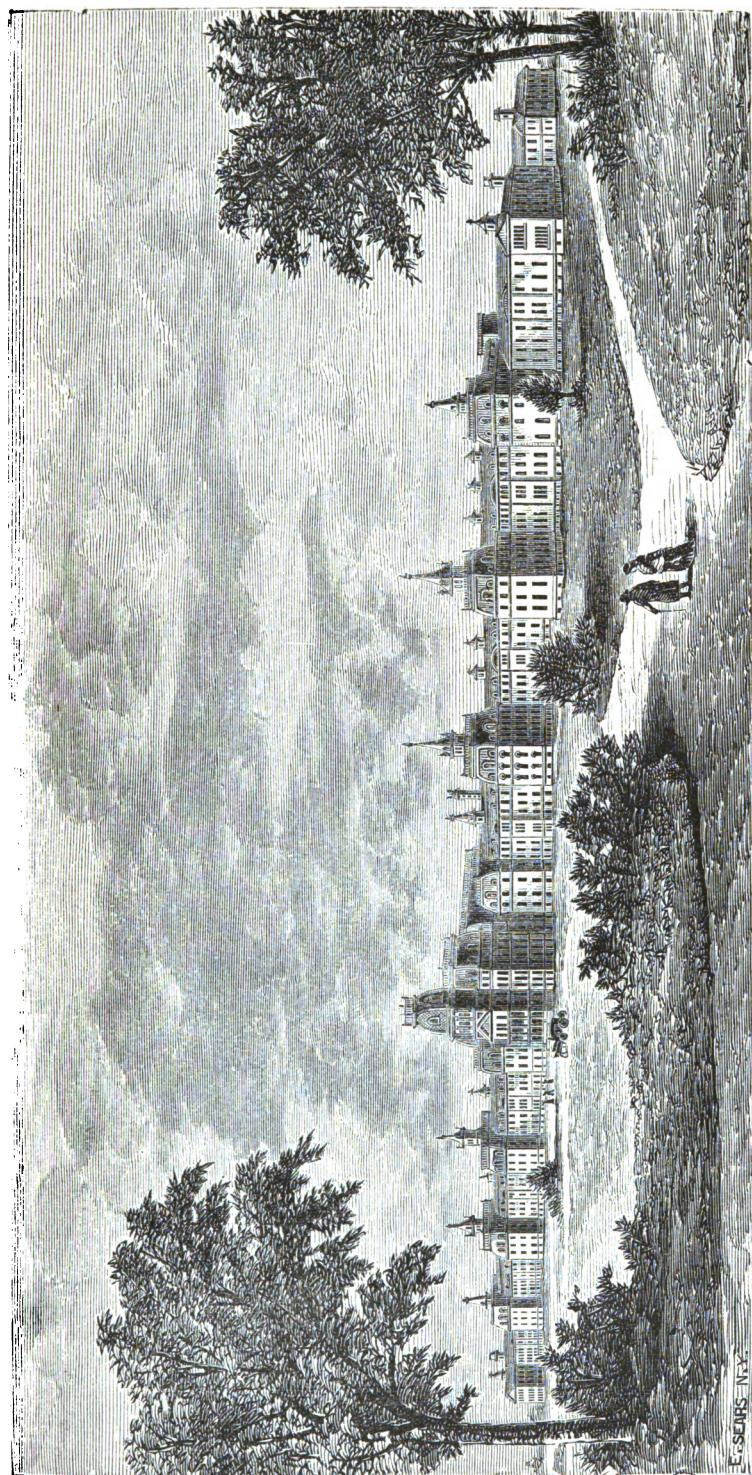
1886.

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CAMDEN, N. J.
THE COURIER PUBLISHING ASSOCIATION.
1886.

ERRATA.

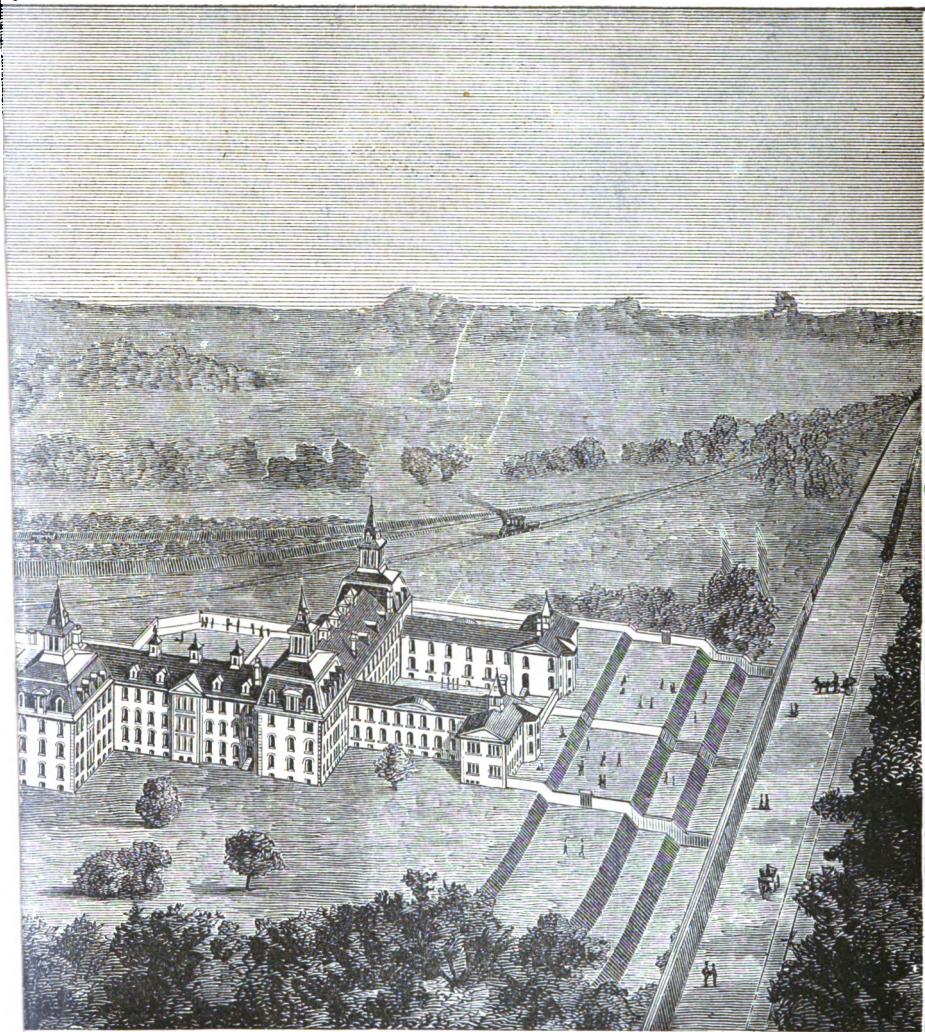
On page 43, Dr. column of Abstract of Accounts, in the Warden's Report, the footing of the columns should read \$253,908.64



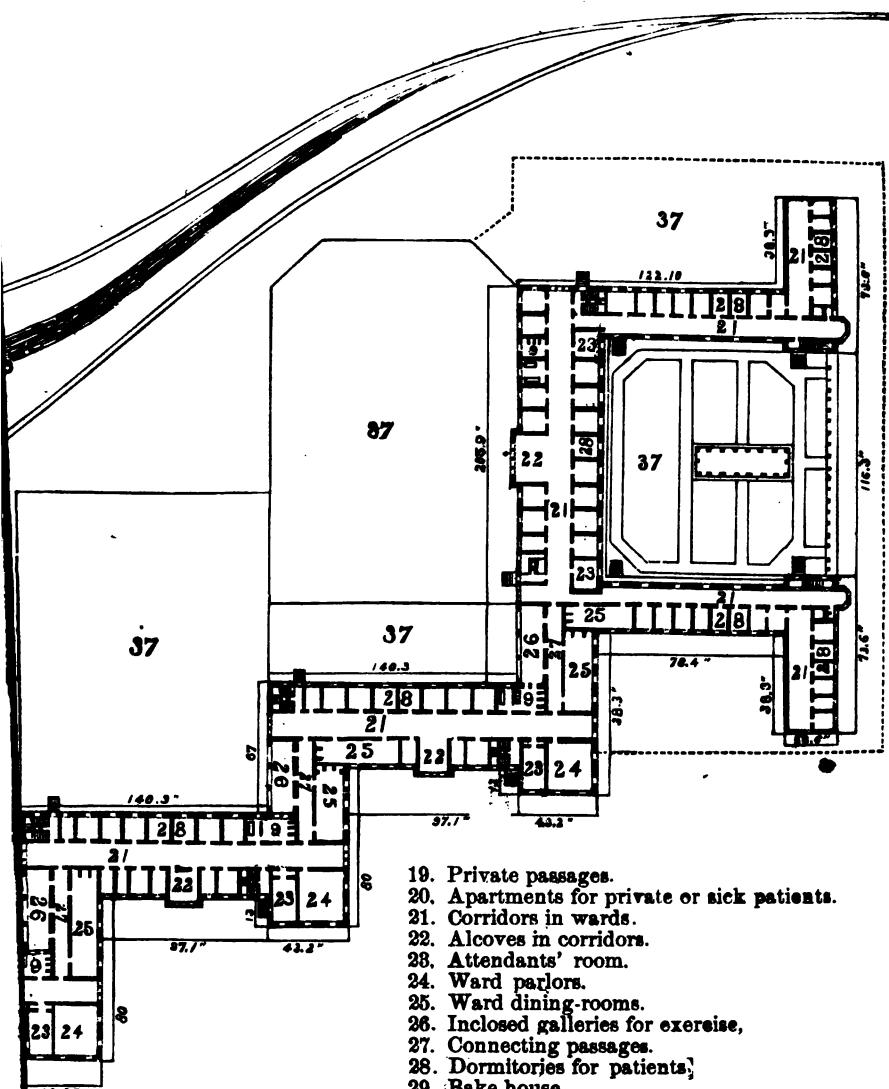
STATE ASYLUM FOR THE INSANE AT MORRISTOWN, N. J.

(PERSPECTIVE VIEW.)

E. S. CURR. N.Y.



RISTOWN, N. J.



19. Private passages.
20. Apartments for private or sick patients.
21. Corridors in wards.
22. Alcoves in corridors.
23. Attendants' room.
24. Ward parlors.
25. Ward dining-rooms.
26. Inclosed galleries for exercise.
27. Connecting passages.
28. Dormitories for patients.
29. Bake house.
30. Boiler house.
31. Machine and work shop.
32. Laundry.
33. Coal vault.
34. Underground passage.
35. Cold air, ducts.
36. Fan rooms.
37. Exercise yard for patients.
38. Railroad to coal vaults.
39. Railroad for general supplies.
39. Terrace.

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OFFICERS OF THE ASYLUM.

MANAGERS.

GEORGE A. HALSEY,	Newark.
HIRAM C. CLARK,	Newton.
JAMES S. GREEN, M. D.,	.....	Elizabeth.
JOSIAH MEEKER,	.....	Succasunna.
THEODORE R. VARICK, M. D.,	.....	Jersey City.
EDWARD T. BELL,	.....	Paterson.
HUGH C. HENDRY, M. D.,	.....	Newark.
WILLIAM S. BANTA,	.....	Hackensack.
JOHN W. JACKSON, M. D.,	.....	Rockaway.
N. W. VOORHEES,	.....	Clinton.

OFFICERS OF THE BOARD OF MANAGERS.

President,	.....	HON. GEORGE A. HALSEY.
Vice-President,	.....	JAMES S. GREEN, M. D.
Secretary,	.....	EDWARD T. BELL.
Treasurer,	.....	EUGENE VANDERPOEL.
Warden,	.....	M. B. MONROE.

MEDICAL OFFICERS.

E. C. BOOTH, M. D.,	.....	Medical Director.
WILLIAM L. RUSSELL, M. D.,	.....	Assistant Physician.
C. P. WERTENBAKER, M. D.,	.....	Second Assistant Physician.
WILLIAM MABON, M. D.,	.....	Third Assistant Physician.
D. W. MCFARLAND, M. D.,	.....	Fourth Assistant Physician.

MANAGERS' REPORT.

To His Excellency Leon Abbott, Governor of the State of New Jersey:

The Board of Managers of the "State Asylum for the Insane at Morristown, N. J.," in obedience to the law, would respectfully submit this, their

ELEVENTH ANNUAL REPORT,

and with it the annual reports of the Medical Director, the Warden and the Treasurer, to which they refer for a full and itemized statement of whatever pertains to each department.

The number in the Asylum on the thirty-first day of October, 1885, was eight hundred and twenty-six (826) patients, of whom four hundred and twelve (412) were males, and four hundred and fourteen (414) were females.

There were received during the year November 1st, 1886, one hundred and ninety-nine (199) patients, of whom ninety-three (93) were males, and one hundred and six (106) were females.

There have been under treatment during the year, including those on probation and by elopement, one thousand and twenty-eight (1028) patients, of whom five hundred and eight (508) were males, and five hundred and twenty (520) were females.

Of these forty (40) were discharged recovered, twenty (20) much improved, seventeen (17) improved, nineteen (19) unimproved, and sixty (60) have died. There were discharged as inebriates, five (5); as opium habitues, two (2).

There were remaining in the Asylum, October 31st, 1886, eight hundred and fifty-seven (857) patients, of which number there were four hundred and fifteen (415) males, and four hundred and forty-two (442) females; nine (9) were absent on probation or by elopement. Of these, seven hundred and twelve (712) were public patients, and one hundred and forty-five (145) were private patients.

The annual inventory of the personal property belonging to the

6 MORRISTOWN ASYLUM FOR THE INSANE.

Asylum, taken by the Warden and two appraisers, as required by law, amounts to one hundred and twenty-one thousand, seven hundred and seventy-seven dollars and fifty-nine cents (\$121,777.59), being an increase of four thousand eight hundred and forty-five dollars and thirty-four cents (\$4,845.34) over the year 1885.

The Treasurer in his report states that the receipts from all sources, including the balance of twenty thousand eight hundred and five dollars and thirty cents (\$20,805.30) on hand November 1st, 1885, amounts to two hundred and seventy-six thousand four hundred and seventy-five dollars and forty-four cents (\$276,475.44), the payments of the same period amount to two hundred and fifty-three thousand nine hundred and fifty-eight dollars and forty-two cents (\$253,958.42), leaving a balance in his hands on the thirty-first day of October, 1886, of twenty-two thousand five hundred and seventeen dollars and two cents (\$22,517.02).

Of these receipts, eleven thousand one hundred and thirty-one dollars and forty-one cents (\$11,131.41) were from convict patients, and sixty thousand four hundred and nineteen dollars and forty-seven cents (\$60,419.47) were from private patients.

On the fifth of March, 1886, Dr. Edwin E. Smith resigned the position of Medical Director, to take effect the first of June following. The resignation was accepted. On the second day of April, 1886, Dr. Edwin C. Booth was elected Medical Director; Dr. William L. Russell, Assistant Physician; Dr. C. P. Wertebaker, Second Assistant Physician; Dr. William Mabon, Third Assistant Physician; and Dr. D. W. McFarland, Fourth Assistant Physician.

The health of the house during the last year has been good. No case of typhoid fever has appeared among the patients, and but one case among the employees. A few cases of diarrhoea occurred during the hot weather, but they were not more numerous or severe than in former years.

During the month of January, 1886, a fire occurred in one of the buildings of the Essex County Lunatic Asylum, which deprived that institution of a part of its accommodation for its inmates. The Board of chosen freeholders of Essex County, applied to this Board for the temporary reception of forty-six patients, who were received on January 11th, 1886, and were returned to Newark May 14, 1886, excepting two patients, who had died at this Asylum.

The question of the disposal of the sewage of the Asylum, has received the serious and attentive consideration of this Board for the last three years, and they have made "a most careful investigation" of the subject "under the light of the advice and experience they" could "receive before they finally" acted "in the matter."

The disposal of the sewage by allowing it to spread itself upon the surface, as practiced by Dr. Buttolph then Superintendent in 1883, having proved a failure on account of the odors arising therefrom, and the possible pollution of the adjacent streams, the Board of Managers applied to the State Board of Health for counsel, and employed Professor Charles McMillan, Civil Engineer of the College of New Jersey, to take charge of the work. After a careful investigation, embracing the amount of sewage to be disposed of, the tract of land to be used, and the peculiar surroundings, and neighborhood of the Asylum, this Board had nearly concluded to adopt the plan popularly known as the "Waring System." After the Legislature had granted an appropriation of \$30,000, solely "to establish a system of sewerage" for this Asylum, a letter of warning being received from your Excellency, based upon a report of Mr. Lebbeus Ward, of the State Board of Water Supply, which was adverse to the plan contemplated by this Board of Managers, the Board called before them Mr. Lebbeus B. Ward, Dr. Hunt and Professor Charles McMillan, to advise them in the matter, on June 11th, 1886.

Mr. Ward's report was read and explained at length by himself. Dr. Hunt and Professor McMillan stated their opinions, which were in opposition to those of Mr. Ward. This Board could obtain no satisfactory information from Mr. Ward on the question, "Will your plan prevent the pollution of the adjacent streams, and at the same time be unobjectionable in the matter of disagreeable odors?" Mr. Ward had no facts to show that the effluent of his system, would be fit to pass into the stream of potable water.

In September, 1885, a committee of this Board visited Bryn Mawr, Pa., to ascertain whether the system placed there by George E. Waring, C. E., to dispose of the sewage of a large Hotel (capacity 300 guests) had worked satisfactorily. After careful investigation and inquiry, the committee were satisfied that the system was a success, and did not pollute any of the neighboring water supplies,

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but that its effluent (but very slight in quantity, although the Hotel was full) was odorless, tasteless and clear. To be more thoroughly assured that this Board of Managers were right in their conclusions, they dispatched a committee to Lenox, Mass., June 14th, 1886, at which place the so-called "Waring System" has been in operation since 1876. The sewage system of this town was thoroughly investigated in every particular, and the committee found that the plan had worked, and was working satisfactorily, except when it had been temporarily overtaxed by surface and roof-water.

A committee of this Board also visited the Asylum for the Insane, at Norristown, Pa. The system for the disposal of the sewage at that place, was in a measure, like the one suggested by Mr. Lebbeus S. Ward. It consists of an intermittent discharge of sewage, by means of a syphon from a receiving basin of seventy-five thousand gallons capacity, every six hours over about seven acres of surface, and into trenches through a proposed garden plot. The trenches into which the discharge had been standing for a few days, were very offensive. This odor would not have been tolerated by the neighborhood of this Asylum. This plan was less objectionable at Norristown, because the surface of land used is isolated, secluded and separate from dwelling houses. No effluent from this system could be obtained, as the discharge pipes empty below the surface of the water in the creek. The engineer in charge informed the committee that the effluent was not sufficiently pure to be passed into the water of a stream used for drinking purposes. This Board after hearing the report of their committee, determined to adopt the plan proposed by Professor McMillan, and approved by Dr. Hunt of the State Board of Health. The work has been pushed forward as rapidly as circumstances would permit, and will be entirely completed in the Spring of 1887. Enough has been done, or will be done before the Winter sets in, to take care of all the sewage of the Asylum without offence to the waters of the adjacent stream or neighboring properties. There has been expended upon this work the sum of seventeen thousand five hundred and eighty-seven dollars and twenty-nine cents (\$17,587.29), leaving a balance of the appropriation of twelve thousand four hundred and twelve dollars and seventy-one cents (\$12,412.71), with which the Board expects to be able to complete the system of sewage to the satisfaction of all concerned.

MORRISTOWN ASYLUM FOR THE INSANE. 9

The Board of Managers have appended to this report the report of Mr. Lebbeus B. Ward on this subject, also the report of Professor Charles McMillan, Civil Engineer in charge of the work of sewerage at this institution.

All of which is respectfully submitted.

GEORGE A. HALSEY,
HIRAM C. CLARK,
JAMES S. GREEN,
JOSIAH MEEKER,
THEO. R. VARICK,
EDWARD T. BELL,
WILLIAM S. BANTA,
HUGH C. HENDRY,
JOHN W. JACKSON,
N. W. VOORHEES,

Managers.

Dated at the State Asylum for the Insane at Morristown, New Jersey, November 11th, 1886.

REPORT OF PROF. CHAS. McMILLAN.

PRINCETON, N. J., June 15th, 1886.

Hon. George A. Halsey, Newark, N. J.:

My DEAR SIR: The printed communication of Mr. L. B. Ward, C. E., to the Governor of this State, is intended, I suppose, to be a condemnation of the plan of sewage-disposal which, at my suggestion, your Board of Managers selected as the appropriate one for the Morristown Lunatic Asylum. Mr. Ward's letter has been laid before you formally by the Governor, together with a letter of his own expressing a doubt as to the correctness of your plan, cautioning you to make sure that your plan is right before spending the appropriation given you by the Legislature, and advising you to consult Mr. Ward about the matter.

The Governor's warning cannot be lightly passed over, and I therefore desire, as far as facts will allow me, to meet the statements on which the Governor's disapproval may in part be based; to recall to your attention an essential though auxiliary feature of your plan, which is apt to be lost sight of in a warm discussion of the principal features; and to draw for your information such a comparison of our scheme and the one advocated by Mr. Ward as the facts may warrant.

We have now had an interview with Mr. Ward, and we ought, therefore, to be in a position to weigh the relative merits of the two schemes.

I. I wish to say, in the first place, that Mr. Ward's claims for the superiority of the method of sewage-disposal by Irrigation over all others are entirely too sweeping. The proper method to be adopted in any particular case can only be determined when all the local conditions have been considered. Irrigation may, under favorable circumstances, be the best method to adopt; but the same may be said of other methods. That Irrigation has merits, no one denies. That it is apt to miscarry in unfavorable weather, even Mr. Ward ad-

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mitted in your presence ; and to claim for it absolute freedom from offence to the senses, and that it exercises a beneficial effect on the health of the neighborhoods, is, in my estimation, carrying the argument beyond the limits of serious consideration. It were quite sufficient for the purpose to claim that, after many years' experience with this method of sewage-disposal and a close scrutiny of its hygienic effects on the immediate neighborhoods of sewage fields, irrigation with sewage, when properly managed, is found to be absolutely harmless. A similar statement, however, can be made in regard to other approved methods of sewage-disposal.

The intimation contained in the letter to the Governor that Irrigation is, in the opinion of sanitary engineers the best method of disposing of sewage appears to me as a hasty and unjust representation of the profession at large in an attitude of sponsorship for an opinion to which, I have good reason for believing, they will not subscribe without important qualifications which will entirely destroy the force of Mr. Ward's statement.

The most recent expression of a very high authority bearing on this very matter, is in the report of the Massachusetts Drainage Commission, from which I quote this paragraph : " In fine, we believe this system to be admirable, if only a number of somewhat intractable conditions, some of which we have indicated, can be controlled. Where all things can be made to work together in harmony, it offers a reasonable probability of at least reducing the expense of getting rid of sewage to a minimum. Where an arrangement can be made to operate it in connection with filtration, so that private agriculturists may take the sewage in such quantities, and at such times, as they may find best for their crops, and, when not desired, can turn it upon filter beds, we think there would be a fair prospect of attaining the largest measure of utilization with the least possible complication and expense."

This Commission, appointed to investigate the conditions affecting the purity of streams within the State of Massachusetts, after considering several processes, finally declares in favor of the system of *Intermittent Downward Filtration*, which is quite a different thing from that extolled by Mr. Ward.

Mr. Ward places before you a letter from Pullman, Ill., in substantiation of his views. Singularly enough, the very point which

forms the basis of Mr. Ward's condemnation of the sub-soil system, viz., the quality of the effluents, is covered in that letter by a confession of ignorance on the part of the writer. And yet this letter has been laid before you as evidence of the merits of irrigation with sewage.

I think you will remember my comments on the lameness of the evidence thus presented and on the *ex parte* nature of the testimony in regard to profits, &c. I now place before you a quotation from an editorial in *The Sanitary Engineer*, June 17th, 1886—one of the highest authorities on such matters in the United States. Speaking of the Pullman sewage-farm, it says:

“The most favorable accounts as to the profitableness of conducting a sewage-farm that we have seen have been those published regarding the one at Pullman, Ill., in which this farm, which has been assumed to have been conducted as a model sewage-farm, has been made shown to make a profit. A recent visit, however, to Pullman explained the reason of this alleged commercial success, which is due to the fact that the farmer manages the farm to raise crops and make money, only *utilizing as much sewage as he needed to promote the raising of crops*. In dry weather, and whenever no injury is done to standing crops, it is allowed to flow upon the fields. At other times it is either turned, during a part of the year, on a number of filter-beds or, as these too are cultivated in turn, it is allowed to run in a crude state into the lake through an open ditch.”

What, I ask, is the value of the figures with which my skepticism was confronted, when weighed in the light of the above testimony of an impartial and competent observer?

2. The statement that Irrigation is the only method which gives any financial returns whatever is entirely wrong.

3. The suggestion that you should dispose of the sewage of the Asylum by irrigation necessarily carries with it another suggestion, viz., that you should institute a sewage-farm in connection with the institution. Now it is quite an old precept that the establishment of such a farm is only warranted when there is a ready market for sewage grown produce. I know of no such market within reach of the Asylum. It may be that you will find a ready sale for your crops in Newark or New York, but I doubt it. It generally requires the lapse of many years before even a portion of a community will

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become reconciled to the use of sewage-grown vegetables, knowing them to be such. As for using them at the Asylum, it would seem to be a very unnecessary and hazardous experiment. Your institution is a sanitarium, and the supplying of its tables with sewage-grown produce will surely repel patronage, at least, until a general sentiment has become established in favor of such products.

4. It may not have any significance, yet the sentence in which Mr. Ward disposes of any popular objections which may arise against the establishment of a sewage-farm with its attendant complications in Winter, on lands near your Asylum, may be interpreted to mean that notwithstanding all that he has said, he has no very great confidence in the inoffensiveness of such an undertaking. He says, "As the Morristown Asylum is situated where land suitable for the purpose can be acquired upon reasonable terms and within convenient distance, where neither the comfort of neighboring residents nor the value of adjacent property can be injuriously affected, &c." If all that he claims for Irrigation be true, why this concern about the comfort of neighbors and the value of property? What can be more clear than that if Mr. Ward's representations in his letter and orally before your committee be true, irrigation with sewage not only cannot be an offence to a neighborhood, but must necessarily prove to be an inestimable blessing to the inhabitants thereof. (See quotations from Corfield.)

5. Mr. Ward states that the effluent from a sub-soil system is impure, and unfit to be mingled with ground-water or with the contents of a stream of potable water. I don't know how he comes by his knowledge, but I suspect that it is largely speculative. His statement would seem to imply that the effluents from irrigation-farms are pure enough to be discharged into streams of potable water without producing pollution. The Massachusetts Drainage Commission, already referred to, recommends, as a measure of precaution, that no sewage effluents be cast into such streams.

It seems to have been assumed in the communication to the Governor that the water of Todd Brook is potable water, else where would be the appropriateness of declaring against the discharge of effluents from sub-soil systems into *potable streams*? Now, the purity of a water is determined by chemists and biologists, not by engineers. Unless, therefore, Mr. Ward can fortify his opinion by

the declaration of an expert in water analysis like Professor Leeds, who, you will remember, analyzed the head-water of Todd Brook, it seems to be unnecessarily antagonistic to your interests to assume that the Asylum is about to pollute the water of a *potable stream*. Moreover, as part of the general question, it is proper to ask, are the standards of purity held by the commission of which Mr. Ward is a member to be applied to the cess-pools throughout the region above your sewage-field, or is the Asylum the only source from which it is proposed to guard the waters of this brook? The rational and equitable method of treating such matters is to guard a stream by law from *every* source of pollution, and in that case, the standard of purity of effluents should be legally established and announced, and not be merely a matter of speculation.

Another question, quite pertinent, arises from Mr. Ward's proposition that you should convey the sewage to some field further away from the Asylum than any property which you now possess. It is, who will protect the Asylum from litigation resulting from real or imaginary invasions of the rights of mill-owners in your immediate vicinity? I understand that you have already been threatened with a lawsuit for an assumed deflection of the natural course of a part of the contents of Todd Brook. Will Mr. Ward guarantee your defence?

In proposing to utilize some of the fields now held by the Asylum, we do not pretend to be able to deliver effluents from the proposed sewage-field in the condition of drinking water. To require us to do so, is to perpetrate the same injustice against the Asylum which was found to result from the earlier applications of the edicts of The Rivers Pollution Commission, the practical effect of which was to require many places to render their effluents many times purer than the streams into which they were delivered. We do claim, however, that Todd Brook will not be injuriously polluted; that whatever impurities may be found in the discharge from the sewage-field will, in that locality, be harmless, and that they will quickly disappear under the action of natural causes; and, in any event, that whatever may be the nature of these impurities, they will be proportionately so far below those which reach the brook from other sources that they may very justly be disregarded until other sources of pollution have been eliminated.

II. Referring, now, to the plan which was adopted by your Board and placed in the hands of your committee to execute, it is proper to remind you that the plan did not consist solely of a system of subsoil filtration as your opponents have assumed it to be. Had these gentlemen taken a little more time for the inquiry, and, permit me to add, a different method, they would have known more of the real nature of the proposed scheme. I assume that the catechising by the Governor was a necessary part of the interview, but I cannot comprehend the purpose of queries by his professional adviser which, beside wasting time, can be construed into an attempt to examine me in the principles of my profession. I certainly did not suppose that he was there for that purpose.

It has all along been part and parcel of the scheme and so understood by your Committee on sewers, the Warden and myself, that the command of ample relief areas should be secured both on the north and the south sides of the lower portion of your grounds, where sewage utilization could be resorted to whenever it was deemed expedient. It was understood that these areas would give the terminal sewage-field all the rest that would be required.

Instead, therefore, of planning, as your critics have assumed, for the continual dosing of the sewage-field, we have, from the beginning, contemplated giving it frequent periods of rest and opportunities for thorough recuperation from any possible overcharge—not because we considered the contemplated charge an overdose, but as a measure of precaution; also, because Mr. Monroe, with an eye to economy, desired to utilize as much of the sewage as he might find convenient or profitable. Mr. Ward's proposition is to employ irrigation all the year round (what you are to do with it in winter, he has not stated); we propose to utilize it only occasionally, or at such times as it may be most beneficial, and when it will not interfere with the farming operations of the Asylum. This is an extremely important difference; and I unhesitatingly say that in this particular our plan is far more rational and safe from miscarriage than that suggested by Mr. Ward. But the use of these relief areas cannot be designated as sewage-farming in any reasonable meaning of the term.

The amount of relief which the sewage-field will thus obtain can be inferred from the fact that there are at least 15 acres of tillable

land, exclusive of the sewage-field proper, within reach of your sewers. Under these circumstances, I consider it absurd to go at present beyond the confines of the Asylum grounds for the disposal of the sewage.

III. Passing, now, to an entirely different subject, viz., the immediate needs of the Asylum, and the possibility of installing a sub-soil system as originally proposed, I desire to say :

1. That the fields commanded by the new sewers will, with careful management, take care of the sewage for a considerable time, except in wet weather, when you will probably be obliged to resort to the gravel field. I am referring to the temporary arrangements. The fields on which Mr. Monroe will utilize sewage temporarily and in connection with the permanent system would be greatly benefitted by underdrainage with tile drains. With the facilities you have at the Asylum, this would probably not cost more than \$110.00 per acre. By purchasing material in bulk, the cost might be brought well within \$100 per acre. Everything that has thus far been planned and executed will subserve equally well the needs of both temporary and permanent systems. I may add that the relief areas are clay lands, and that, therefore, they will be greatly improved, from an agricultural point of view, by underdrainage.

2. The great delay in appropriating the money for carrying out your plans, and the very natural indecision which has resulted from the Governor's criticism, renders it highly improbable that any large portion of the sub-soil system can be carried out this year. Indeed, from the rate at which the present work is progressing, it is highly improbable that anything worth mentioning, in the way of laying absorption tile, will be accomplished before cold weather sets in. Fortunately, if the flush-tank and main carrier (the delivery pipe to the gravel field) are completed, together with such sub-drains as may be found to be necessary, you will be in condition to use the gravel field as a filter area throughout the winter. If this be accomplished, I should regard your sewage question so far solved that the rest, viz., the introduction of the sub-soil features could be deferred without any detriment whatever until Spring. The surface and sub-soil systems are so very much alike in their appliances that the conversion of the former into the latter can be made to consist, practically, of laying the necessary carriers and absorption tile, that is, when

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such a step has been properly provided for. A large portion of the grading can be deferred until you are ready to introduce the pipes. I am quite confident that no harm can result from the operation of the temporary expedient which I have indicated, and which seems to be the only means of relief left you by your opponents for the coming winter.

I am, dear Sir, with great esteem,
Yours, very sincerely,
CHAS. McMILLAN.

REPORT OF L. B. WARD.

Hon. Leon Abbott, Governor of New Jersey,

SIR: I have considered your inquiries as to the means and methods for treating, utilizing, or otherwise disposing of the sewage of the State Asylum for the Insane at Morristown, which will most effectually and certainly accomplish the following results: First, remove the causes of sickness now prevalent at the Asylum connected with faulty disposal of sewage, avoiding however the creation of a similar danger to health elsewhere. Second, abate the public nuisance and injury to the health of the neighborhood chargeable to the same causes. Third, protect the potable waters of the state from pollution due to the introduction of crude or imperfectly purified sewage either directly into the streams or into the general body of ground water by which the flow of the streams is maintained.

It is a general proposition confirmed both by long practical experience and by the latest scientific discoveries, and now universally admitted by sanitary engineers, that surface irrigation of growing crops or of cultivated land is the most economical and efficient of all methods of disposing of sewage where purification is sought. It is superior in economy to all other methods of purification in its installation and maintenance and is the only one which makes any financial return whatever. Its efficiency consists in preventing, absolutely when properly managed, not only all offence to the senses due to putrefactive changes in the sewage but also the possible injury to health arising from the two potent causes now in action at the Asylum; the storing up of the sewage, and its subsequent admission while still a putrescible liquid and chemically unchanged into the general drainage of the country. The writer of most eminence on the treatment and utilization of sewage at the conclusion of an exhaustive treatise on the subject says: "Finally, with regard to irrigation farming the facts that we have brought together seem to us to show clearly that it satisfies the three conditions

which we have laid down ; the sewage is purified, a profitable agricultural return is ensured, and the health of the neighborhood is not endangered." (Corfield : Digest of Facts, p. 337). The same writer cites observations to prove that irrigation farming, properly carried out, may be a positive advantage to the health of neighborhoods, a result to be expected from the purifying action exercised upon the surrounding atmosphere by the luxuriant healthy vegetation supported upon sewage farms ; it being authoritatively stated that the health of children living in the midst of irrigated districts, far from suffering, has actually improved.

The difficulty, growing out of the extent of land required for the complete disinfection and purification of the sewage, which interferes with the adoption of the system of sewage farming for large cities and towns does not need to be considered here, as the Morristown Asylum is situated where land suitable for the purpose can be acquired upon reasonable terms and within convenient distance, where neither the comfort of neighboring residents nor the value of adjacent property can be injuriously affected ; and as there is an ample variety of soil and surface to select from, and as the distribution of the sewage owing to commanding site of the building will be perfectly effected, without mechanical aid, by gravitation, I should not hesitate to recommend the agricultural use of the sewage by the method of surface irrigation as the best means of purifying and disposing of it, having regard to all the points laid down at the beginning of this letter.

The system of irrigation here specified differs vitally from that hitherto in operation at the Asylum and known there by the name of surface irrigation. The sewage has been allowed to drain in excessive quantities over a rough, stony and impervious surface of limited area and rapid descent ; the time occupied in its passage and the distance passed over being too short to effect any useful purification. Experience has shown that to purify sewage by this method it must flow fifteen hundred feet in a thin film and small quantity over an irrigation area graded naturally or artificially to a gentle slope of one in two hundred to five hundred. The flow should not continue longer than three days at a time. These conditions have not been complied with, and the ordinary aids to purification afforded by abundant vegetation and a drained and well-aerated soil have moreover been wanting.

I have, at your request, given the system known as sub-surface irrigation as careful an investigation as time would permit, visiting for that purpose the Bryn Mawr Hotel where a large plant of this kind has been installed since 1881.

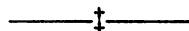
It is necessary to point out that this system differs in principle from irrigation proper as described above. In that, the organic matter of the sewage diffused over the surface of the ground is rapidly converted by the agency of micro-organisms into food for plants; light and air being indispensable factors in effecting this change. As the partially purified sewage sinks into the earth this action becomes less energetic, and probably ceases at about the depth of twelve inches, depending much upon the aeration of the lower stratum or subsoil to which pipe drains, where laid, usually act as air ducts.

In sub-service irrigation the absorption tiles used for distributing the sewage are buried to the depth of eight or ten inches. At this depth the effect of the sunlight and open atmosphere is lost and the work of purification by micro-organisms is correspondingly diminished. The process thus degenerates into a form of filtration, resulting in an impure effluent water which should be denied admission into potable streams and is equally unfit to mingle with the ground water.

Very Respectfully,
LEBBEUS B. WARD.

Jersey City, May 29th, 1886.

REPORT OF PROF. CHAS. McMILLAN.



PRINCETON, N. J., Nov. 17th, 1886.

The Board of Managers of the State Asylum for the Insane at Morris Plains, N. J.

GENTLEMEN:—Having been informed that you desire to incorporate in your Annual Report a report on the progress of the new sewerage works of the Asylum, I have the honor of stating that the scheme of sewerage which you ordered to be executed has been carried out so far that, practically, there remains only the laying of the absorption tile with the necessary carriers to make the works complete. All the rest of the work, though lacking, here and there, some slight detail, may be regarded as finished in all essential particulars.

As your Report is addressed to the Legislature of the State, and is intended for publication, it may be desirable to describe briefly your scheme of sewerage with a more particular description of such parts of the general plan as will enable its salient features to be readily comprehended.

This scheme is essentially that proposed by me in September, 1885, as described in your last Annual Report. A few features have been added as measures of relief and safety, but they do not in any wise alter the original design.

I have prepared the accompanying sketch showing the relative location of the different parts of the general plan with the view of facilitating references to them.

The new sewers tap the old ones below the lowest points of discharge from the building and run thence, one along the north side and the other along the south of the ridge at the head of which the Asylum is situated, until they reach the old boundary of the grounds, where they are united. The foreground of the Asylum is a prominent ridge sloping gently towards Morris Plains, but having comparatively steep side slopes in the neighborhood of the building.

The latter feature, and the fact that the old sewers run down these side-slopes and are therefore at the points of interception far below the crest of the ridge, render the separation of the new sewers, as described above, a necessity.

There is an advantage, however, in their separation, in that it enables them to reach some of the outlying fields on the sides of the ridge, and to make these areas available for surface irrigation. These fields, which are quite distant from the building and unfrequented by patients, can thus be fertilized with sewage without expense to the Asylum, or, they can be used as relief areas whenever, in the opinion of the Warden, the sewage-field proper requires rest. Should they be thus temporarily used, it is extremely improbable that any complaint would arise.

A catch-basin is built in each line, wherein the foreign matters cast into the closets by patients will be arrested, and whence they can be removed by the usual methods or with an odorless excavator.

The sewers are constructed of culled Akron pipes, six and eight inches in diameter, and are provided, at intervals averaging a little less than three hundred feet, alternately with man-holes and lamp-holes from which every run of each sewer can be inspected. The south sewer is eight inches in diameter throughout; while on the north side, the flow being less, eight-inch pipe is used only as far as the catch-basin, the rest of the line being of six inch pipe.

Immediately below the junction of the new sewers are situated two tanks wherein the solid particles of the sewage will be separated from the liquid by the natural settlement of the solids assisted by the straining of the sewage through screens. The completed design will have four such tanks (fifty-three hundred gallons each), coupled in pairs in such a manner as to admit of their being used altogether or alternately in pairs, as circumstances may from time to time require. It was not thought necessary to introduce the additional tanks at present, as other parts of the work called for the concentration of our available force of masons upon them, and the tanks already constructed were considered a sufficient provision for the needs of the coming winter.

The outlets of the settling tanks are united in a man-hole whence the clarified sewage can be turned by a "switch" either into the ad-

joining flush-tank or out upon the surface of the field immediately below the tank.

The flush-tank is constructed of brick laid in hydraulic mortar, and is plastered on the inside, and on the outside as far down as the frost line, with Portland cement. Its flushing capacity is about eighty thousand gallons. It will discharge its contents through a delivery main of ten and twelve inch pipe into a distributing basin, or well, situated near the middle of the so-called gravel field, which is the sewage field of the system. Provision has been made for emptying the flush-tank otherwise than through the siphon, and for regulating the volumes and the frequency and rates of its discharges.

The sewage-field has been graded to the necessary slopes for laying the absorption tile and has been underlaid with drain pipes mainly for the purpose of promoting the aeration of the different filter beds. The area which is commanded by the central distributing basin of the gravel field is about seven acres. The remaining available slopes and a small portion of the sloping field above them, amounting altogether to about three acres, will have sewage delivered to them from the man-hole, which is both a distributing basin and an air-vent of the delivery main.

Inasmuch as some objections were raised by others than myself to the use of the gravel field for cleansing sewage, on the ground that it was composed of unsuitable materials, it is proper to say that the trenching in this field has demonstrated that the objections were not well-founded.

It is intended to put the flush-tank, the delivery main and the sewage field into operation before the close of this season, resorting in the absence of absorption tile, to intermittent surface filtration. The sewage will be the very best means of protecting the masonry from frost; moreover, the use during the winter of the sewage field and the works leading thereto will be valuable to us as a test of their action. I do not believe that, with the appliances we have for controlling the sewage, its application to the surface of the gravel-field for so short a time can, by any possibility, become the cause of complaint.

The features to which I refer as having been added to the original plan are, the underdraining of that part of the clay field which lies between the flush-tank and the gravel field, and the utilization

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of the depressed corner of the gravel field, otherwise useless, by converting it into a level tract whereon the effluents from the sub-drains of the clay field and a part of those from the gravel field can be subjected to a refiltration, whenever necessary. The sloping clay field referred to is a relief area for the gravel field. As it is designed to use it as a sewage-field only occasionally, its surface will be covered at times with fissures, or sun-cracks, which at the first application of the sewage will admit the liquid unchanged deep into the soil; it was therefore thought best to prepare the small level filter bed for catching and filtering the effluents from this field.

The following is an approximate estimate of the piping which will have been laid by the close of the season :

Twelve inch sewer pipe.....	546 feet.
Ten inch " "	580 "
Eight inch " "	3,430 "
Six inch " "	3,500 "
Four inch drain tile.....	2,400 "
Two inch " "	14,000 "

I remain, Gentlemen, very respectfully,

Your most obedient servant,

CHAS. McMILLAN.

TREASURER'S REPORT.

To the Board of Managers of the State Asylum for the Insane, at Morristown, New Jersey:

GENTLEMEN:—The Treasurer of the Asylum respectfully submits the following abstract of his receipts and expenditures from November 1st, 1885, to October 30th, 1886, inclusive:

DR.	
Balance on hand November 1st, 1885.....	\$20,805 80
To amount received from the State Treasurer for county patients	\$35,029 70
To amount received from the State Treasurer for convict patients.....	11,181 41
To amount received from the State Treasurer for sewer appropriation.....	22,500 00
To amount received from sundry counties for the support of county patients.....	122,781 86
To amount received for the support of private patients.....	60,419 47
To amount received for hides, fat, rags, &c.....	8,807 70
	255,870 14
	\$276,475 44

CR.

By amount paid Warden's orders.....	\$253,958 42
Balance in Treasurer's hands.....	22,517 02
	\$276,475 44

EUGENE VANDERPOEL,

Treasurer.

Dated State Asylum for the Insane, Morristown, N. J., November 5, 1886.

We hereby certify that we have examined the Treasurer's accounts, and compared the same with his books and vouchers, and find them, in accordance with the above statement, correctly stated and balanced.

EDWARD T. BELL,
JOHN W. JACKSON,
N. W. VOORHEES,

Committee.

WARDEN'S REPORT.



To the Board of Managers:

At the close of another year in the history of this Asylum, I respectfully submit for your consideration the Eleventh Annual Report of financial and business operations of the Institution for the fiscal year ending October 31st, 1886.

In addition to the regular duties of my office, I have undertaken the continuation of many improvements within the building, of its fixtures, of the grounds, and upon the several cottages and out-buildings connected with the Asylum property, a description of which is herewith submitted, and I trust the same will meet with your approval as it did of the Committee's, whose advice and sanction was my authority for such improvements.

FINANCIAL.

The average number of patients during the year was eight hundred and forty-five.

The number belonging in the institution at this date, eight hundred and sixty-six.

The receipts from all sources (exclusive of the special appropriation for the new sewer) including a balance of \$20,738.56 in the hands of the Treasurer, at the date of my last report, amounts to \$253,908.64. The total disbursement for current expenses to present date is \$238,342.94, leaving a balance of the current fund in the hands of the Treasurer, of \$15,565.70.

The amount of subsistence and fuel now in store, is estimated at \$14,175.29.

Accounts due, \$38,936.88.

Making a total of \$68,677.87, against which we have liabilities amounting to \$20,486.16.

In consequence of a disastrous fire occurring at the Essex County Asylum in January last, the uninjured portion of their building became over-crowded, and application was made to your Board for

the temporary admission of forty-six male patients into this Asylum, until their building could be repaired, which request was granted, and accordingly on January 11th, 1886, that number was brought to this Institution, accompanied by a committee of the Chosen Freeholders, and cared for until May 14th, 1886, when they were returned to the County Asylum at Newark.

FARM, GARDEN AND DAIRY.

The farm land cultivated, consisting of about three hundred (300) acres, including pasture fields, has been somewhat reduced and limited during the past season in consequence of the opening of a number of trenches and ditches for the new sewer system, through cultivated fields upon which we depended for crops. Notwithstanding this interruption, however, the liberal use of fertilizers applied last year, and during the past season, gives us a very fair profit on the result of the year's labor. The returns from this department are given in detail in the appendix, and valued at \$17,262.36.

The expenditures for all purposes, including hay, straw and feed, for the use of teams and stock were, \$11,686.07.

Leaving us a net profit above expenses of \$5,576.29.

For which result we are also indebted in a great measure, to the employment of patient labor in gathering and caring for the crops.

IMPROVEMENTS.

In addition to the usual repairs to the fixtures in the machine shop and to the steam-heating and ventilating apparatus, &c., three lines of $2\frac{1}{2}$ extra heavy pipe have been put in behind the boilers and connecting with feed-water pipes running from pumps, thereby forming a feed-water heater. The object being to raise the temperature of the feed-water with waste heat from the boilers. This experiment has proved fairly successful,—considerable difference in the temperature of the feed-water being apparent, with consequent gain in the reduction of consumption of fuel. Connecting flues have been built between the Exhaust Fan chambers, and the flue in rear of the boilers connecting with the smoke stack, in which have been placed dampers, which are opened when a stoppage of the Fans occur, thus insuring a continuous exhaust from the sewers.

The walls in rear of boilers, and the north-end wall, were consid-

ered unsafe; they were taken down and rebuilt in a solid and substantial manner.

The governors on the engines have been refitted with machine cut gears of forged steel, also with new flanged pulleys and counter shafts. The connections with valves for operating the steam dampers, have been brought down from the Mangle or Ironing Room into the boiler room within easy reach of the firemen, who are now able to clean their fires, with steam up to its highest, and damper open, thus taking the dust and dirt from Furnaces, and conducting to economy, by keeping steam up with less difficulty.

Waste of Relief valves have been placed on heating mains at most remote points from boilers, the object being to prevent the accumulation of water in the mains, and to give the water of condensation a chance to return by its own gravity, instead of being forced out. The result has been better circulation with lower initial pressure.

Last winter heating radiators were placed on 4-4 north side; that particular ward being more exposed than any of the others, and with less facility for heating. In this connection, I would suggest that heaters of the same pattern be placed on 4-1 and 4-2 south side, as we find it quite difficult to heat this portion of the building, during extreme cold weather, more steam being used on these two halls than other parts of the building. These heaters require comparatively but very little steam to operate them, having proved economical on the floors where they have been used, as shown by great saving of steam in the ducts, and the reduction of steam required to heat the lower floors of the building.

About 150 feet of piping for steam heating has been put in since last winter to replace worn out pipe. Corrugated Iron Plates have been placed over the return pipe and water mains in rear of Boiler House, and a considerable portion of the duct between that locality and Kitchen has been furnished with the same. The plates for completing the entire duct being on hand and ready to put down during the winter. The passage in the rear of boilers has been flagged in a substantial manner. There yet remains a considerable amount of this class of improvement, or repairs to be done, the most important of which is the machine shop floor, being greatly in need of a Cement or Stone floor to replace that of wood, which is in very bad condition.

The Feed Pumps at the Boiler House, being of an old pattern and in use eleven years, require a thorough overhauling every summer, new valves and plungers being necessary, on account of their imperfect working. This make of pumps is not adapted for pumping hot water as well as some of other makers. Feed-water should be at boiling point in order to get good results in the boilers. Pumps of improved pattern can now be obtained that will pump water at a high degree of temperature, with less than one-half the steam required to run those we have in use.

The boilers during the past summer have been thoroughly inspected, inside and out, and cleaned. They are all in good condition, and with proper care, will last for many years yet. The firelinings will have to be renewed next summer, one or two, perhaps, before that time. The dividing walls between the boilers, are badly burned out in some places, and are in a weak condition generally. It will probably be necessary to rebuild some of them very soon.

In my quarterly report of February, 1885, your attention was called to the additional expense for fuel entailed by the use of the Ashcroft Grate bars, which had been supplied to the furnaces of four boilers during the summer of 1884. The tests then made were under unfavorable circumstances, on account of the defective draft, and the prejudice of the firemen, who insisted on keeping thicker fires than were necessary, and also did not give the matter careful attention, owing to the extra labor required in more frequently attending to the fires. The results then shown, however, was a large percentage in favor of the other grates and small coal. After the exhaust fans for ventilating the sewer had been placed in the base of the stack, the draft for the furnaces was restored so that they had the full benefit of the smoke stack, and during the past summer I have caused to be made additional tests of the comparative value of these fixtures, and the Engineer reports as follows: "During the month of June last, fifteen days of which we used grate coal, consuming one hundred and fourteen (114) tons, at a cost of \$387.60. The last fifteen days of the month, Buckwheat Coal was used, consuming ninety-six (96) tons at a cost of \$216.00. A difference in cost of fifteen days consumption of \$171.60."

This test was made with two boilers running, which is the number

generally in use during the warm season. The saving in the use of small coal may then be stated as follows :

Cost of fuel for running two boilers with Ashcroft Grates for thirty days, \$575.20.

Cost for running two boilers with Tupper Grate bars for thirty days, \$432.00.

It will thus be seen that we have \$143.20 in favor of the Tupper sectional grate bars, and small coal, when only two boilers are used. In the winter season, six boilers are generally in use, so that if we calculate six months with two boilers in use, and six months with six boilers in use, we could save \$3,436.80 by abandoning the Ashcroft fixtures, and using the Tupper Sectional Grates, and small coal.

I would therefore recommend that a change in these fixtures be made without delay.

The lowering of the heating coils originally located in the top of the ventilating stacks was commenced a few years since ; this being carried on during the summer months in connection with other work throughout the basement. Three remained to be completed, and these were finished during the past summer. It has been found that a better circulation was obtained in the coils when they were placed nearer the base of the stacks, and also easier of access, for repairs, &c. Attention is called to the heating flues running through the rear wall of the building to the rooms on the fourth floor. In cold weather it is very difficult to get a proper circulation of heat through them. Last winter the experiment was tried of continuing the tin pipe from the radiators in the air chambers to the registers above, through the flue, with very good results.

Much discomfort and annoyance has been experienced by the men employed in the Boiler House, owing to the leaking condition of the roofs of the coal vaults, over which the railroad was located, with openings on the track, to discharge the coal into the vaults below ; and through which the surface water found its way after storms into the vaults, flooding the floors of the Boiler House. During the past summer, the loose earth has been removed from the arches, and a concrete covering composed of broken stone, ashes, and gravel, mixed with coal tar and pitch, to the depth of fifteen inches, has been put down, and we now feel assured that a positive remedy has been applied.

(3)

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THE CENTRAL AVENUE

was opened for use last December, but not completed; work upon this improvement was again resumed in the early spring, and about the same number of patients were employed as last season. As much has been accomplished during the past year, as could be expected, considering the many other enterprises which have claimed my attention.

As an encouragement and reward to those employed in the various departments, a number of the patients were permitted to attend the exhibition of the Doris Menagerie and Circus, at Morristown, at the expense of the institution, during the summer, an amusement which many of them looked forward to, and now speak of as a great pleasure.

PROTECTION AGAINST FIRE.

Swinging hose racks have been conveniently located on all the wards throughout the building, and each supplied with from 125 to 150 feet of linen hose, which at all times is connected with the water main in each wing, and ready for immediate use. Wrenches to turn on the water are in possession of the attendants, who are instructed as to their use, in case of necessity.

THE CARPENTERS.

Under the head of improvements I propose to mention some of the more important items, without going into details of all the work accomplished by each department. I therefore enumerate among the important work of the carpenters the cutting away of old fixtures, and making new seats, bath tubs and flush tanks in the centre water closets and new wash tubs in laundry; storm sash in exercise rooms of the wings, the same being necessary on account of these rooms being used for dormitories; tables for dining rooms, sash for hot beds and green house, additions to stables, two summer houses, renovating and building additions to four cottages occupied by employes; also repairing furniture and general repairs throughout the buildings; Fairbanks' stock and hay scale, of ten ton capacity, with platform 20x11 feet, rack or enclosure for stock, and small house to protect weigher in stormy weather.

THE PLUMBERS

have been engaged in making general repairs to the steam, water, gaspipes and fixtures; fitting up radiators for the upper floors of the Institution, and in general repairs at the gas works. Among the other important work accomplished by this department may be mentioned: Covering steam and hot water pipe, building grease traps, setting steam traps in boiler house, (for returns from kitchen, tea rooms, &c.) putting in place new cooking apparatus, fitting up swinging hose racks, and extending water pipe to connect for use in case of fire, throughout the building, disinfecting sewer, and renewing steam and return pipes throughout the building, disinfecting sewer, and renewing steam and return pipes throughout the air passages.

THE PAINTERS

deserve credit for the accomplishment of many improvements in their line during the year. All the buildings upon the premises have been repainted, including the workshops, mattress-room, bedrooms, laundry and bakery. Twelve hundred and seventeen (1217) lights of glass being among the repairs; this item alone would startle an ordinary householder. In addition to the above may be stated, painting of all the bath and wash rooms of the Institution, kalsomining and decorating parlors of the wards, and refinishing and varnishing all the repaired furniture from the carpenter shop; also decorating and papering rooms of the Front Centre building.

MATTRESS ROOM.

The full list of articles made and repaired in the Mattress Room and Shoemakers' Shop, will be found stated in detail in the appendix, and shows that the employees engaged there have not been idle during the year.

THE GAS WORKS.

Two men are constantly employed in the Gas House; and there has been consumed during the year, (including the amount used in the Laundry for heating irons) five million five thousand and seventy, nine hundred and ten (5,570,910) cubic feet of gas. The total cost of which amounted to four thousand, one hundred and eight dollars and ninety-seven cents (\$4,108.97), from which it will appear that our gas has cost us less than seventy-four cents per thousand cubic

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feet, without crediting the coke and gas tar returned from the works.

THE SEWING AND DRESS-MAKERS' ROOMS

furnish the Institution with all that is required to be made of dresses and underclothing, for both sexes of the patients ; also bedding, linen, &c.; a full list of which appears in the appendix. The value of the services of the employees of these departments may be safely classed among the most important, as the returns will show.

THE TAILOR SHOP.

The tailors have not kept a record of the number of articles repaired during the year, except as they are charged upon a day-book; but their work, I have no doubt, has been quite as profitable to the institution as it was important and useful.

TIN SHOP.

The employees of this department have contributed their share of usefulness in the working of the institution. A detailed list of the many articles made and repaired in this shop would occupy more space than we can spare at this time, and I will therefore only enumerate a few articles made in the greatest numbers :

Sixteen large tea kettles, four hundred bread pans, twenty-four drip pans, twelve six quart soup pails, ten large kettles, one hundred diet cups and flats, forty dinner boxes, one hundred and fifty three gallon fruit cans, forty-eight large square pans, twelve fourteen quart tin pails, sixty butter boxes, twelve large wash bowls; fitting up canopy and tin duct connected with the chimney to ventilate and carry off odors and the steam from the kitchen; roofing cottages, tin water leaders; repairing cooking apparatus, clocks, sewing machines, coffee pots, water pails, gutters, &c., &c.

THE BLACKSMITH

shoes the horses, repairs wagons and farm implements, sharpens and repairs tools, &c., &c.

THE MASON

is constantly in demand for general repairs on the wards and buildings.

THE BAKER

furnishes the table with over nine hundred (900) loaves of bread daily, besides a considerable quantity of pastry, in the shape of pie, cake, pudding, &c., &c.

THE BUTCHER

prepares the beef, mutton, lamb, poultry and pork in such quantities as are required by the cook, and for a family of nearly 1200 it can readily be understood that his office is no sinecure.

THE NEW SEWER.

An effort was made late last fall to lay the pipe for the north new sewer, so that temporary arrangements could be made to divert the sewage during the winter from the cesspools on that side, but the work proving more difficult than was estimated, this was not accomplished, and we were obliged to defer operations until May, when the work was resumed; and on this side 2200 feet of pipe has been laid. The trench for the pipe was of an average depth of five feet. In digging this trench, a great many large boulders were found, and several ledges of rock, one of about one hundred feet in length in the woods, and another where the catch-basin is located. These all had to be blasted out to a sufficient depth below the grade of the sewer line to have a bed prepared for the pipe to rest upon. Nine hundred feet from the beginning a catch-basin was located to collect all the larger articles that might pass through the sewer. Along the line of the sewer man-holes and lamp-holes were put in alternately, about three hundred feet apart. The south sewer was built from the line of the old sewer to the junction with the sewer from the north side, a distance of 2300 feet. Eight-inch pipe was used for this line instead of six-inch, as on the north side, on account of the greater quantity of water to be carried; as all that is used in the laundry passes into the south sewer. Alternate man-holes and lamp-holes were also built on this line. The trench for the south sewer had an average depth of four feet. Boulders were also encountered on this line, and some trouble was caused by the surface water which found its way into the trenches. Lines of pipes were laid from the junction of the North and South sewers to each settling tank, so that either could be used. From the settling tank,

pipes were laid to a man-hole with two outlets, one to the flush-tank, and another to the surface.

The flush-tank, a brick cistern fifty feet in diameter, and of a capacity of about eighty thousand gallons, has been built with an automatic Syphon, arranged to discharge the contents at periods very rapidly into a twelve-inch pipe connected with the gravel field. Tile-drains five feet below the surface have been put in the field lying between the flushing tank and the gravel field. These drains are forty feet apart, and have a total length of about six thousand feet.

“Ærating” drains have been laid in the gravel field. They are about five feet below the finished surface of the field. Where the soil of the field was an open gravel, these drains were put one hundred feet apart, but where it was gravel and clay, they were forty feet apart, and have a total length of about ten thousand feet.

About seven acres of the gravel field have been graded to a uniform surface with the proper slope to give a regular grade to the distributing-drains when they are put in at an equal distance below the surface.

An acre of ground has been sub-drained, and graded to a level; to be used as a filtering basin, if at any time it may be necessary to turn the sewage away from the gravel field.

It was hoped that we would be prepared to put the new system into operation early this Fall and dispense with the old arrangement, which was so much complained of, and which carried the effluent into the streams; but up to the present date, the work has not advanced sufficiently to permit us to make use of it. I am assured, however, that before the season closes, we shall be able to have a portion of the system in operation.

The diversion of the rain water on the North side, from the new sewer line, was a work involving a great amount of labor and care.

All the drains conveying rain-water from the different sections to the old sewer, were laid very deep, many of them from eight to twelve feet below the surface of the ground, to cut them off from the old sewer, and lay new outlets, giving sufficient fall to carry away the large amount of water that would fall on the area of surface covered by the North side, involving the digging of very deep trenches in the made ground used in the original grading around the building. All the drains in the rear of the building were discon-

nected from the sewer, and new drains laid underneath the building. To do this it was necessary to cut through the foundation walls, five feet thick, on both sides of the building, and also through the partition wall under the building. I am glad to state that the entire work is now accomplished, and as stated in my report of last year, that the disposition of the storm water of the North side is now also provided for by a separate system, disconnected from the sewer. This system of pipes from the North wing, discharge into the sewer at a point below the junction of the new sewer pipe with the old or main sewer.

Your attention was called in my report of last year to the inadequate supply of water from the sources supplying the upper reservoir. After consulting with the Committee, it was decided to increase the storage capacity of the lower reservoir by raising the dam ten feet higher, and excavating the material for the dam from its bottom. When this is done, the lower reservoir will have storage capacity of five million gallons, and sufficient head to force the water to all parts of the building. We hope to provide in this way a sufficient storage of water to carry us through a period of drought without resource to pumping from the stream on the north side of the building.

The amount of expenditures for these several improvements will be found under appropriate heads in the abstract of accounts following.

The Annual Appraisement and Inventory of Personal Property in and about the Asylum was made in the usual manner, and at the date fixed by the statute, and amounted to \$121,777.59, an increase of \$4,845.34 above the appraisement of last year.

I was assisted by the Hon. John L. Kanouse, and Mr. Silas C. Halsey, to whom I am under great obligations for valuable assistance

ACKNOWLEDGEMENTS.

Besides the usual Magazines, Weekly and Daily papers, subscribed for by the Institution, we are indebted for the following papers which were kindly sent us by the Publishers :

The Jerseyman and True Democratic Banner, of Morristown; The Index and Iron Era, of Dover; The Star of the Cape, of Cape May; The Warren Republican, of Hackettstown; The Hunterdon

40 MORRISTOWN ASYLUM FOR THE INSANE.

Independent; The Middlesex County Democrat; The Metuchen Enquirer; The Hudson County Journal; The Courier of Camden, and The New Jersey Courier of Toms River. Also eight bound volumes of the Atlantic Monthly from Miss Wells, of Paterson, N. J.

REQUIREMENTS.

In compliance with the Act of April 7th, 1885, the following is submitted as an appropriate estimate of the amount of funds required from the State Treasurer, including salaries of resident officers, and for other purposes, for the next ensuing fiscal year, beginning on the first day of November, 1886.

Averaging the present number of patients in the house to be maintained, and estimating the present number without increase for that period: amount required for support and maintenance, \$238,342.94. The sum required from the State Treasurer, in addition to that received from private patients, and from the several Counties, including salaries of resident officers, is as follows:

Salaries of resident officers.....	\$9,400 00
For support of Convicts.....	11,181 41
Allowance of one dollar per week for the support of each County patient, the average number of which was 677.....	35,204 00
Making a total of.....	\$55,785 41

All of which is provided for by law.

The further amount required for which special appropriation would be necessary is, made up as follows: Farm, Barn and Out-building, \$11,200.00.

In closing this report, I desire to express my appreciation of the faithful services of those who have assisted me in the management, and who have so materially aided in the successful working of the several departments under my charge.

To the Managers I am under many obligations for kindly advice and support, and I trust that in my efforts to conscientiously and faithfully discharge the duties of my office, I have not failed in earning their approbation.

M. B. MONROE, Warden.

MORRISTOWN ASYLUM FOR THE INSANE. 41

CLASSIFICATION OF INVENTORY.

Subsistence and Fuel.....	\$14,175.29
House Furnishing.....	70,590.03
Farm, Garden, Implements and Stock.....	9,986.87
Clothing, Hardware, &c.....	8,085.87
Shop Tools and Miscellaneous,.....	19,040.04
<hr/>	
Total.....	\$121,777.58

MORRISTOWN ASYLUM FOR THE INSANE. 43

Abstract of Accounts for the year ending October 30th, 1886.

EUGENE VANDERPOOL, Treasurer.

DR.	CR.
To balance October 26, 1885.....	\$20,788 50
To amount received for board, clothing and incidental expenses of private patients.....	60,751 40
To amount received for board, clothing and incidental expenses of county patients.....	123,781 86
To amount received from State Treasurer for county patients.....	35,029 70
To amount received from State Treasurer for convict patients.....	11,181 41
To amount received for hides, tailow, etc.....	2,427 58
To amount received for sundries, rags, etc.....	681 24
To amount received for rents.....	50 00
To amount received for hogs and pigs.....	309 90
To amount received for postage.....	6 25
	\$3,475 77
Amusements.....	\$876 29
Books and stationery.....	949 94
Bedding, linen, etc.....	5,235 12
Clothing.....	10,399 61
Crockery and cutlery.....	531 40
Farm and garden.....	7,674 25
Fixtures.....	2,733 53
Flour.....	6,184 35
Feed.....	2,389 08
Fruit.....	2,790 12
Freight.....	3,883 14
Furniture.....	4,350 71
Fuel.....	12,092 59
Funeral expenses.....	572 26
Fire apparatus.....	755 45
Grounds and grading.....	5,792 76
Gas and steam pipe and fittings.....	832 58
Harness, blankets and stable supplies.....	437 30
Hay and straw.....	1,182 64
Household goods.....	812 35
Incidentals, including telegrams, telephone rental, soap, waste combs and brushes, razors, strops, etc.....	1,903 62
Improvement of buildings.....	5,672 65
Improvement of ventilation, etc.....	2,223 50
Light, including gas used as fuel in laundry and for cooking.....	4,108 97
Laundry.....	4,573 57
Medical supplies.....	3,159 75
Medical library.....	174 00
Newspapers.....	287 90
Provisions and groceries.....	75,184 65
Postage.....	375 00
Potty current expenses.....	500 00
Painting.....	2,737 96
Refunding.....	1,328 74
Repairs.....	11,620 04
Smith and wheelwright.....	830 64
Stock.....	2,131 50
Towels and supplies, boiler house and machine.....	998 29
Traveling expenses.....	61 27
Tinware and fixtures.....	947 59
Vegetables.....	1,582 35
Wages.....	46,735 61
	\$238,342 94
Balance.....	15,585 60
	\$253,928 64

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SPECIAL APPROPRIATION FOR SEWEBS.

Dr.

1886.

Sept. 2. To amount Received from State Treasurer on warrant of Comptroller.....	\$15,000 00
Oct. 14. To amount received from State Treasurer on warrant of Comptroller.....	7,500 00
	<hr/>
	\$22,500 00

Cr.

By amount expended to October 30.....	\$17,587 29	\$17,587 29
Balance.....		\$4,912 71

RECAPITULATION.

Receipts from maintenance fund.....	\$253,908 64
Receipts from sewer appropriation.....	22,500 00
Expenditures for maintenance.....	\$238,342 94
Expenditures for sewer.....	17,587 29
Total Balance.....	20,478 41
	<hr/>
	\$276,408 64
Balance.....	\$276,408 64

Balance..... \$20,478 41

ORDERS NOT PRESENTED FOR COLLECTION.

No. 816 (1885).....	\$9 89
" 756.....	9 88
" 1051.....	49 25
" 1059.....	5 00
" 1116.....	268 21
" 1117.....	119 79
" 1118.....	98 29
" 1119.....	110 95
" 1124.....	52 60
" 1126.....	98 18
" 1127.....	337 58
" 1128.....	54 60
" 1133.....	330 08
" 1134.....	308 75
" 1136.....	10 80
" 1139.....	12 00
" 1140.....	87 75
" 1143.....	9 61
" 1148.....	50 00
" 1157.....	16 00
" 1159.....	15 00
	\$2,088 61

Balance in hands of Treasurer Oct. 30, '86:.... \$22,517 02

APPENDIX.

APPENDIX TO WARDEN'S REPORT.

FARM AND GARDEN PRODUCTS.

Garden, 1886.

610 bunches parsley.....	@ \$0 02	\$12 20
7275 bunches radishes.....	02	145 50
2865 bunches asparagus.....	08	205 20
1848 bunches rhubarb.....	05	92 15
219 $\frac{1}{4}$ bushels peas.....	1 00	219 50
214 $\frac{1}{4}$ bushels string beans.....	50	107 25
184 bushels lima.....	45	82 80
568 bushels potatoes.....	65	369 20
92 bushels onions.....	75	69 00
157 bushels apples.....	50	78 50
21 bushels squash.....	50	10 50
360 bushels beets.....	65	234 00
271 bushels spinach.....	40	108 40
182 bushels kale.....	30	39 60
534 bushels tomatoes.....	45	235 80
55 bushels sweet potatoes.....	65	35 75
30 bushels horse radish.....	80	24 00
5 $\frac{1}{4}$ bushels white field beans.....	50	2 75
10 bushels Boston marrow squash.....	50	5 00
120 bushels carrots.....	50	60 00
600 bushels yellow stone turnips.....	35	210 00
200 bushels white stone turnips.....	25	50 00
238 bushels cucumbers.....	1 00	238 00
15,392 heads lettuce.....	02	307 84
10,046 heads cabbage.....	06	602 76
20 heads cauliflower.....	05	1 00
18,800 heads celery.....	03	414 00
36,380 ears sweet corn.....	00 $\frac{1}{2}$	272 48
67 $\frac{1}{2}$ dozen early cucumbers.....	60	40 50
65 egg plants.....	06	3 90
1945 pumpkins.....	04	77 80
5640 musk-melons.....	05	282 00
2240 peppers.....	01	22 40
1800 bundles corn stalks.....	38	54 00
102 bushels grapes, 3570 lbs.....	04	142 80
38 baskets peaches.....	1 00	36 00
27 baskets pears, stewing.....	75	20 25
36 baskets pears, early.....	1 50	54 00
54 baskets pears, Bartletts.....	1 00	54 00
70 baskets pears, sickle.....	1 00	70 00
58 baskets pears Lawrence.....	50	29 00
1597 quarts strawberries.....	10	159 70
858 quarts currants.....	08	68 24
360 quarts gooseberries.....	08	28 80
1040 quarts raspberries.....	10	104 00
490 quarts blackberries.....	10	49 00
		<hr/>
		\$5,519 57

Dairy and Farm.

20,889 gallons milk.....	@ \$0 18	\$8,760 02
93 dozen eggs.....	80	27 90
128 loads hay, 182 tons.....	18 00	2,876 00
50 tons straw.....	12 00	600 00
1050 bushels corn on ear.....	25	262 50
931 bushels potatoes.....	65	605 15
391 bushels potatoes, small.....	40	156 40
1088 bushels oats.....	45	489 60
117 bushels rye.....	70	81 90
138 bushels wheat.....	90	124 20
2544 bundles corn stalks.....	08	76 32
3550 bundles corn fodder.....	08	106 50
6 loads pumpkins.....	8 00	18 00
653 bushels apples, selected.....	70	457 10
1162 bushels apples, cider.....	10	116 20
17 bushels apples, crab.....	1 00	17 00
600 quinces.....	01 $\frac{1}{2}$	9 00
26 week pasture for 50 head of stock.....		650 00
		<u>\$9,933 79</u>

Stock.

47 calves, 6929 lbs.....	@ \$0 06	\$415 74
65 fowls.....	50	32 50
9 turkeys.....	2 00	18 00
19 guinea fowls.....	50	9 50
318 head swine, large and small.....		985 00
138 pigs sold.....		303 90
Wool sold.....		44 36
		<u>\$1,809 00</u>
		<u>\$17,262 86</u>

ACCOUNT OF FRUITS, ETC., CANNED AND PRESERVED.

Tomatoes.....	759 gallons.
Pine apples.....	20 gallons.
Cherries.....	6 gallons.
Blackberries.....	8 $\frac{1}{4}$ gallons.
Raspberries.....	5 gallons.
Peaches.....	288 gallons.
Pears.....	346 gallons.
Plums.....	54 gallons.
Pickled Peaches.....	25 $\frac{1}{4}$ gallons.
Quince Jelly.....	17 $\frac{1}{2}$ gallons.
Currant Jelly.....	57 $\frac{1}{4}$ gallons.
Quinces.....	240 $\frac{1}{4}$ gallons.

REPORT OF ARTICLES MADE AND REPAIRED IN MATTRESS-ROOM—1886.

Single hair mattresses.....	93
Double hair mattresses.....	6
Single hair mattress made over.....	654
Double hair mattress made over.....	11
Pillows, hair.....	288
Pillows, hair, made over.....	1,314
Single mattress ticks.....	177

MORRISTOWN ASYLUM FOR THE INSANE.

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Double mattress ticks.....	6
Pillow ticks.....	368
Pillows, feather.....	18
Bolsters, feather.....	2
Pieces furniture upholstered.....	27
Large hall carpets, 360 yards.....	3
Large hall carpets, repaired and laid.....	16
Alcove carpet.....	1
Alcove carpets repaired and laid.....	10
Parlor carpets repaired and laid.....	5
Room carpets.....	43
Room carpets repaired and laid.....	122
Bath rooms laid with linoleum.....	8
Bath rooms laid with oil cloth.....	2
Rooms laid with rush matting.....	2
Carpets taken up.....	21
Chairs caned.....	156
Settees caned.....	3
Protectors, bed.....	315
Window shades.....	178
Awnings.....	3
Ottomans.....	8
Cushions.....	10
Wall Brackets.....	38
Lambrequins.....	8
Pillows, sofa.....	3
Carpet mats.....	28
A prons, rubber.....	4
Fly nets.....	2
Protectors, bed, repaired.....	268
Trunks repaired.....	6
Horse blankets repaired.....	42
Pieces of harness repaired.....	24
Holders for bakery and boiler room.....	34
Yards carpet bound.....	600
Yards carpet hemmed.....	200

SHOE SHOP.

Pairs boots, shoes and slippers repaired.....	692
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SEWING-ROOM, 1886—ARTICLES MADE.

Dresses.....	700
Petticoats.....	591
Chemises.....	1,008
Aprons.....	240
Night gowns.....	53
Underwaists, women's.....	877
Undershirts, men's.....	427
Drawers, women's.....	69
Shirts.....	910
Sheets.....	2,488
Pillow cases.....	2,083
Towels.....	2,319
Spreads hemmed.....	176
Curtain straps.....	54
Night shirts.....	2
Sacques.....	46

(4)

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Blankets hemmed.....	108
Clothes bags.....	62
Pudding bags.....	40
Curtains and Lambrequins.....	123
Table cloths Hemmed.....	27
Burial robes.....	35
Diapers.....	12
Drawers, men's.....	435
Pillows.....	82
Napkins hemmed.....	260
Aprons, barbers.....	2
Men's aprons.....	132
Night caps.....	7
Camesoles.....	31
Table covers.....	6
Stand covers.....	4
Bolster cases.....	26

Respectfully submitted,

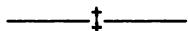
M. B. MONROE,

Warden.

State Asylum for the Insane,

Morris Plains, N. J., Oct. 30th, 1886.

MEDICAL DIRECTOR'S REPORT.



To the Board of Managers:

GENTLEMEN—In compliance with the regulation of your Board, the following annual report is respectfully submitted.

By Table I it will be seen that there were 829 patients—415 men and 414 women—in the Asylum at the beginning of the year, and 865—424 men and 441 women, at its close. This increase of thirty-six patients over the number remaining at the end of the preceding year is somewhat less than the average annual increase for the last five years. This diminution is attributable to two causes—first, that twice within the period named, patients have been transferred in large numbers at one time to this Institution from the Asylum at Trenton, and secondly, that no patients have been received from other States, which furnished in former years an average of fourteen per cent. of the total number admitted.

The admissions for the year number 199 persons—93 men and 106 women; a number smaller than the average annual admission in consequence of the two causes above enumerated. Six patients suffering from the effects of alcoholic excess and one from opium addiction were admitted to the benefits of the Asylum for longer or shorter periods, but being not insane were classed as "Inebriates" and "Opium Habitue" and will not, therefore, appear in subsequent tables.

One hundred and sixty-two (162) persons—84 men and 78 women,—were discharged during the year. This aggregate includes five inebriates and two opium habitues, who will not enter into the statistics of the remaining tables, and sixty deaths. One woman was discharged twice during the year.

Forty persons—fourteen men and twenty-six women—were discharged "recovered," having apparently regained their normal health of mind, and being able to resume their former avocations. Twenty persons—eleven men and nine women—were classed "much

improved." These persons appeared very nearly restored to their usual mental condition, and have almost without exception taken up again their former occupations. Seventeen persons—twelve men and five women—were designated "improved," having gained more or less mentally during their residence at the Asylum. Nineteen persons—eleven men and eight women—were discharged without having made any perceptible mental advance, and having, in some instances, retrograded. Such persons were styled "unimproved." The table of statistics do not include forty-six men who were transferred January 11th, 1886, from the "Essex County Asylum for the Insane," in consequence of partial destruction of that Institution by fire. By arrangement with the County authorities these patients were regarded as temporary boarders. They were not formally discharged from the County Asylum, and they figure in the statistical tables of that Institution for the current year. Two died during their stay here, and the remaining forty-four were returned to Newark at the completion of the necessary repairs, on May 14th, 1886.

It may be computed from Table II that, of the 192 persons admitted during the year, 105—forty-nine men and fifty-six women—were admitted during the summer months (March to August inclusive), and 94—forty-four men and fifty women—during the winter months (September to February). It will be further noted that the proportion of the sexes of those admitted is the same for the two seasons. The date of attack, which is of course, not identical with the date of admission, could be ascertained in only ninety-six cases, of which forty-six were admitted during the summer, and fifty during the winter season. Of the 192 persons admitted during the year, as seen by Table III, 167—eighty-one men and eighty-six women were admitted for the first time; twenty-two persons had been admitted more than once and had furnished twenty recoveries. These latter were mostly cases of melancholia and mania, the former disease largely predominating. The number of cases and of persons is the same, as no one was admitted more than once during the year.

By reference to Table IV it will be seen that the first attack of insanity in the patients admitted was most frequent in persons between the ages of twenty and forty, and next in frequency between the ages of thirty and forty. This showing is in accord with

the results obtained in this country, and is not unnatural in view of the fact that in these two decades the cause of insanity operative, are much more numerous than in the previous decade, and that the number of people living is considerably greater than in the latter periods of life.

An examination of Table VI shows that the nativity of persons admitted was ascertained in every instance. One hundred and one persons, or more than one-half, were natives of New Jersey; twenty-six were born in other states of the Union; and the remaining sixty-five were natives of foreign countries, Germany and Ireland furnishing about two-thirds of the number. It is a suggestive fact, that while the foreign-born population of New Jersey numbers only twenty per cent. of the total population of the State (as recorded in the United States Census of 1880), thirty-four per cent. of the admissions to the Asylum for the last year were natives of other countries. While the percentage of the foreign-born in the two sexes is almost the same in the State, the percentage of foreign-born women admitted to our care was thirty-eight per cent. of the total admission, and nine per cent. greater than that of the men.

- Table XI exhibits the form of disease in the persons admitted. It will be observed that the classification adopted is somewhat different from that previously employed in this Asylum. It is essentially the classification of Krafft-Ebing, and is adopted on the ground of imparting a much more definite information regarding our cases, than that obtained by the old classification of Mania, Melancholia and Dementia, and their various sub-divisions. Melancholia in the classification here used is divided into two grades, according to the severity of the disease. The sub-division "passiva" covers all the lighter forms of the disease, and includes "melancholia agitata" and "resistive melancholia." The sub-division "attonita" designates a more profound impression on the central nervous system characterized by stupor and tetanic and cataleptic manifestations. All but two of the cases received were placed under the former sub-division. Mania has also been divided into two grades—a milder form of "maniacal exaltation," and a severe form of "frenzy" or "raving madness." But three of our cases were adjudged sufficiently severe to be classed under the latter heading. The cases here styled "secondary monomania" are such as had their beginning in a distinct

acute attack either of mania or melancholia, and now, in a chronic and presumably incurable condition, are passing on to a terminal dementia. The cases of "terminal dementia" are divided into two classes, the "apathetic" and the "excited." The term "primary monomania" (the primare Verrucktheit of the Germans), is employed to designate a class of cases which plays an important *role* in every Asylum and are not satisfactorily classified under the headings "chronic mania," "chronic melancholia," &c. These cases are generally those with hereditary predisposition to insanity and are often the subjects of peculiarities of mental and physical organization. These mental peculiarities, developing of themselves by slow growth, or reinforced by other ætiological factors, as masturbation, uterine diseases, change of life, &c., blossom into pronounced disease, marked in the great majority of cases by hallucinations and delusions. Such cases have not had an acute beginning in mania or melancholia, and although at times exhibiting depression and excitement cannot properly be classed as forms of these diseases. Primary monomaniacs do not generally suffer the rapid impairment of the intellectual faculties observed in those who are in a transitional state between an acute affection and terminal dementia, but on the contrary often preserve a high degree of acuteness to the last. Eighteen men and twenty-one women suffered from this form of insanity. Seven cases of "general paresis" were admitted. One of these was a woman, the only case of this sex admitted for several years. The patient is thirty-five years old, and is not hereditarily predisposed to insanity. A year prior to admission, without known cause, became unreasonable, irritated, and at times, violent. Eight months later began to show impairment of memory, and lack of judgment. Could do nothing that required calculation and reflection. Five weeks later became destructive and ruined dresses and other articles. At this time she developed delusions of grandeur, and declared herself to be very rich. She bought articles and left the shop without paying for them. She became rapid in her movements whereas she had previously been slow; she was talkative and confidential to strangers. On admission showed a slight inequality of the pupils and a difficulty in the articulation of certain words. She had violent fits of anger, occasionally, but was easily managed by tact. Now, seventeen months from the beginning of her attack,

she is easily excited, has a sense of well-being, a contented, smiling look, is constantly going home "to-morrow"—a time that never comes,—gives away watches, pianos, houses, &c.; is a great actress, and is worth a fabulous sum of money. She is occasionally filthy in her habits, and obscene in her language. Difficulty in articulation and tremor of the tongue have gradually increased and her gait is marked by dragging of the heel. The features of the disease in this case in no essential particular differ from those in many cases of men. The case is slowly but surely progressing toward the inevitable termination. It is believed that the occupations of the female residents of the counties sending their insane to this Asylum, do not favor the generation of this dreaded disease, which generally occurs among women of the more oppressed and abandoned classes.

In assigning the causes of insanity (Table XII), only the most probable and potent cause of the often several apparently conspiring causes, has been taken in each case. Of the moral causes, "domestic trouble," as usual, is the most important, existing in eight per cent. of the known cases. By the physical causes "ill health" has been regarded as the prime factor in twenty-one cases, or fourteen per cent. In many of the instances, malaria was very reasonably assigned as the cause of insanity. Insanity was caused by "intemperance in drink" in from eight to ten per cent. of the cases. Masturbation seemed to be the principal cause in six per cent., and epilepsy in five per cent. of the cases known. In eight per cent. of the cases, hereditary influence seemed to be the strongest element in the ætiology. A careful study of the nature and extent of the hereditary influence was made in all the one hundred and ninety-two cases admitted where a definite history was attainable. In thirty-three of the eighty-nine male cases, and twenty-seven of the one hundred and three female cases, either nothing at all was ascertained regarding the ancestors of the patient or the person furnishing the history was deemed too ignorant of the facts to be depended upon. These cases are not taken into consideration. In the case of twenty men and forty-one women, careful inquiry of presumably competent persons revealed no hereditary taint, while thirty-six men, or sixty-four per cent., and thirty-five women, or forty-six per cent. of the cases under consideration were, directly or collaterally, hereditarily predisposed to insanity. Of the fifty-six men with a well ascertained

history, six had insane fathers, six insane mothers, and in one case both parents were insane; eight had insane brothers, and two, insane sisters; seven had paternal and three maternal relations insane, exclusive of cousins. Of the seventy-six women, one had an insane father, and ten had insane mothers, and one an insane father, and an insane mother; three had insane brothers; six had insane sisters, and one had both a brother and a sister insane; two had paternal and seven maternal relations insane, excluding cousins as before. While the number of cases here reviewed is too small to render any deductions conclusive, it will be noted that our statistics tend to establish the fact that men are more likely to inherit insanity from their paternal, and women from their maternal ancestors.

Table XVII has been prepared for the purpose of showing the results in the cases admitted and discharged as affected by the duration of the disease before admission, and the number of attacks sustained. The percentage of recoveries in persons with a first attack, which, prior to admission, had lasted a period less than three months, is found to be, in this annual showing, forty per cent., or twice as large as the percentage of recoveries in the total admission, thus again emphasizing the importance of the earliest possible commitment to an Asylum in all cases of mental disorder.

Among the cases discharged, was that of a man who had become insane in consequence of the opium habit. He was fifty-four years old, and was without hereditary taint of insanity. He had taken opium continuously for twenty years, except for a short period several years ago, when a withdrawal of the drug was attended with an attack of insanity lasting three weeks. For a year or more previous to his admission he had consumed, on the average, one and one-fourth ounces of opium per week. For two months he had showed an incapacity for business, and had suffered with hallucinations of hearing and delusions. He was moderately excited, was in incessant motion, making grotesque gestures, and throwing off his clothing. He had some appreciation of his condition and could control himself fairly well in the presence of the physicians. He received no opium after his admission. In three and one-half months he became quieter, but still showed imperfect self-control, and on slight provocation became angry and excited. He continued much in the same condition for several months, and gradually gained thirty-four

pounds in weight. He was willing and able to employ himself regularly every day in a light out-of-door occupation, and in fifteen months made a trial away from the Institution. He soon returned, however, but in a short time made a further mental gain, and went home well. He has since kept well, and continued at business.

As will be inferred from Table XIX, the death rate for the year was low, being seven per cent. on the average number resident, and five and eight-tenths per cent. on the total number under treatment. The causes of death have been varied and no cause was particularly prominent. Autopsies were made in the case of twenty men and nine women, and careful records of results obtained, have been preserved. Many interesting and instructive facts were recorded. In one instance the insanity was clearly traced to a fibro-myoma, which was embedded in the posterior wall of the uterus, and measured $2\frac{1}{4} \times 2\frac{3}{4}$ inches.

The general health of the Institution for the last year has been good. We have been visited by no epidemic of disease, and no case of suicide, homicide or serious accident has occurred. But one case of typhoid-fever developed itself and that not among the patients.

Much stress has been laid during the year on the occupation of patients. The difficult construction of a new and central approach to the Institution, and the inauguration of a new system of sewerage have furnished ample opportunity for an unusual number of our patients to engage in out door work. Evidences are on every hand, that such employment has proved of incalculable benefit to the participants, not only in establishing a better state of physical health and sounder sleep, but in producing a more tranquil condition of mind, greater contentment, and in many instances, marked amelioration of disease.

At the opening of the season, companies of men under the supervision of attendants were provided with pick-axes, shovels and wheel-barrows, and were cautiously employed for half-time, morning and afternoon. Gradually the working hours were lengthened until the performance of a respectable day's labor was gained. Sixty-three men, many of whom had for years aimlessly wandered through the airing courts, and dozed upon the benches of the wards, found pleasure and profit in their new and varied exercise. Besides those

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engaged in the construction of roads and sewers, forty-nine have been regularly employed in the various works of the Kitchen, Laundry, Bakery, Mattress Room, and Farm, and large parties have been temporarily organized to lend a helping hand in gathering the various crops. Many women have been regularly employed in the Kitchen and Laundry, and extra parties have frequently assembled for the special indoor work of the various seasons.

No halls of this Asylum have been thus far so constantly and regularly thrown open as to deserve the name of "open wards." Full parole has been granted in fifteen cases of men, and five of women, and has been rarely abused; but any considerable enlargement of this number has been deemed incompatible with the best interests of those committed to our charge, and of the community at large. Very little mechanical restraint was used in the Asylum during the last year. During the month last past, four men and two women have been regularly restrained by wristlets, muffs or camisole during the day, and five men and two women during the night. In the cases of night restraint, it was felt that the camisole afforded the most rational way of preventing further action of what was adjudged to be the cause of the disease.

Amusements have been continued during the winter season as in previous years, and have consisted either of weekly dances, weekly card parties, and weekly entertainments of various character, including dramatic performances, concerts, minstrel entertainments and stereoptican exhibitions, of home talent, or readings, concerts, lectures, and variety entertainments by professional pleasure-givers. A large party attended a circus performance at Morristown, August 20th. During a part of the summer season, the Asylum brass band played semi-weekly alternately in front of each of the two wings, to the edification and delight of all. Divine service has been regularly held in the chapel Sunday afternoons, by the Rev. Drs. Merritt and Erdman, and Rev. Messrs. Parker, Crawford and Holloway. Thanksgiving and Christmas services were conducted respectively by Rev. Mr. Holloway and Rev. W. S. Ludlam. Except during the hottest weather, a large gathering has participated every Sunday evening in the singing of Sacred Music.

During the year the Institution has been kindly remembered by Mrs. Arnold Weichert, who presented to the ward libraries ten large

volumes of the German magazine "Ueber Land und Meer," and four volumes of the Gartenlaube; and by Miss H. G. Wells, who gave eight volumes of the Atlantic Monthly, elegantly bound, and two miscellaneous volumes. Gifts of files of papers have been received from friends in Morristown, all of which gifts are gratefully acknowledged.

On June 1st, Doctors W. L. Russell, C. P. Wertenbaker and William Mabon, were advanced respectively to the positions of first, second and third assistant, and Dr. D. W. McFarland was appointed fourth assistant. To these gentlemen I desire to express my appreciation of their loyal support, and their earnest endeavors to advance the interests of the Institution. My thanks are due to the supervisors and attendants, many of whom took their posts at the opening of the Asylum, and continue in efficient and conscientious discharge of their trying duties.

To your Board I am under obligations for renewed evidences of your kindness and confidence.

Respectfully submitted,
EDWARD C. BOOTH,
Medical Director.

Morris Plains, N. J., Nov. 1, 1886.

TABLE I.

SHOWING THE ADMISSIONS, READMISSIONS, DISCHARGES AND DEATHS
DURING THE YEAR ENDING OCTOBER 31ST, 1886.

	Males.	Females.	Total.	Males.	Females.	Total.
In the Asylum November 1st, 1885.....	412	414	826	.....	.....	.....
Absent by elopement November 1st, 1885.....	3	.....	3	.....	.....	.....
Total.....	.....	.....	.....	415	414	829
Cases Admitted—						
First admissions.....	81	86	167	.....	.....	.....
Not first admissions.....	8	17	25	.....	.....	.....
Admitted as inebriates.....	4	2	6	.....	.....	.....
Admitted as opium habitue.....	.....	1	1	.....	.....	.....
Total cases admitted during the year.....	.....	.....	.....	93	106	199
Total cases under care during the year, in- cluding those absent on probation and by elopement.....	.....	.....	.....	508	520	1028
Cases discharged—						
Recovered.....	14	26	40	.....	.....	.....
Much improved.....	11	9	20	.....	.....	.....
Improved.....	12	5	17	.....	.....	.....
Unimproved.....	11	8	19	.....	.....	.....
As inebriates.....	4	1	5	.....	.....	.....
As opium habitues.....	.....	2	2	.....	.....	.....
Died.....	32	28	60	.....	.....	.....
Total cases discharged and died during the year.....	.....	.....	.....	84	79	163
Absent on probation October 31st, 1886.....	2	.....	2	.....	.....	.....
Absent by elopement October 31st, 1886.....	7	.....	7	.....	.....	.....
Remaining in the asylum October 31st, 1886.....	415	441	856	.....	.....	.....
Total.....	.....	.....	.....	424	441	865
Average number resident during the year.....	.....	.....	.....	417.6	437.7	845.3

TABLE II.
MONTHLY ADMISSIONS, DISCHARGES AND AVERAGES.

MONTHS.	ADMISSIONS.			DISCHARGES (including deaths).			DAILY AVERAGE OF PATIENTS IN THE HOUSE.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1885.									
November	8	12	20	6	6	12	418.13	416.10	829.33
December	7	7	14	2	5	7	415.73	421.22	836.95
1886.									
January	9	2	11	6	3	9	415.76	420.16	835.92
February	7	8	15	8	8	16	418.89	418.65	837.04
March	8	12	20	9	9	18	417.38	423.35	840.73
April	11	9	20	4	4	8	418.90	425.80	844.70
May	6	7	13	7	6	13	419.64	428.67	848.31
June	5	18	23	3	5	8	420.33	437.96	858.29
July	9	6	15	15	5	20	421.09	439.00	860.09
August	10	4	14	7	14	21	420.82	435.98	856.25
September	5	12	17	9	9	18	417.46	429.96	847.42
October	8	9	17	7	6	13	412.22	435.64	847.86
Total of cases....	93	106	199	88	80	168			
Total of persons..	93	105	199	88	79	162			
Daily average for year*							417.62	427.7	845.33

* Four men and two women admitted as insane and classed as inebrates, and one woman admitted as insane and classed as an opium habitue ; and four men and one woman discharged as inebrates, and two women discharged as opium habitues are not included in the following tables.

TABLE III.
RECEIVED ON FIRST AND SUBSEQUENT ADMISSIONS.

NUMBER OF THE ADMISSION.	CASES ADMITTED.			TIMES PREVIOUSLY RECOVERED.		
	Males.	Females.	Total.	Males.	Females.	Total.
First.....	81	86	167	10	3	13
Second.....	6	16	22	1	20	21
Third.....	1	1	2	.....	.....	.....
Ninth.....	1	1	1	.....	.....	.....
Total of cases.....	89	108	192	11	28	84
Total of Persons.....	89	108	192	10	16	26

TABLE IV.
AGES OF PERSONS ADMITTED FOR THE FIRST TIME.

AGES.	AT FIRST ATTACK OF INSANITY.			WHEN ADMITTED.		
	Males.	Females.	Total.	Males.	Females.	Total.
Fifteen years and less.....	6	4	10	1	4	5
From 15 to 20 years.....	3	5	8	3	8	6
“ 20 to 25 “	12	10	22	8	16	24
“ 25 to 30 “	9	10	19	14	11	25
“ 30 to 35 “	13	8	21	12	8	20
“ 35 to 40 “	5	7	12	11	8	19
“ 40 to 50 “	10	17	27	14	15	29
“ 50 to 60 “	6	16	22	8	12	20
“ 60 to 70 “	4	6	10	4	5	9
“ 70 to 80 “	2	2	4	4	2	6
Over eighty years.....	1	1	2	1	.....	1
Unknown.....	9	.....	9	.....	2	2
Total	80	86	166	80	86	166

TABLE V.
PARENTAGE OF PERSONS ADMITTED.

PLACES OF NATIVITY.	MALES.		FEMALES.		TOTAL.	
	Father.	Mother.	Father.	Mother.	Father.	Mother.
United States.....	40	40	51	53	91	93
Germany.....	19	19	12	11	31	30
Ireland.....	19	19	20	21	39	40
England.....	2	1	11	8	13	9
Scotland.....			2	1	2	1
Wales.....	1	1		1	1	2
Austria.....			1	1	1	1
Holland.....	1	1	3	3	4	4
West Indies.....			1	2	1	2
France.....		1				1
Denmark.....	1	1			1	1
Italy.....	1	1			1	1
Unknown.....	5	5		2	7	7
Total.....	89	89	108	108	192	192

TABLE VI.
NATIVITY OF PERSONS ADMITTED.

PLACES OF NATIVITY.	Males.	Females.	Total.	
New Jersey.....	45	56	101	
New York.....	11	5	16	
Ohio.....	2		2	
Maine.....	1		1	
Connecticut.....	1		1	
Pennsylvania.....	1	2	3	
Arkansas.....	1		1	
Delaware.....	1		1	
New Hampshire.....		1	1	
Germany.....	14	8	22	
Ireland.....	7	16	23	
England.....		1	1	
Scotland.....		1	1	
Wales.....	1	1	2	
Denmark.....	1		1	
Holland.....	1	3	4	
Italy.....	1		1	
Austria.....		1	1	
West Indies.....		2	2	
Total of persons.....	89	108	192	

TABLE VII.
RESIDENCES OF PERSONS ADMITTED.

PLACES OF RESIDENCE.			Males.	Females.	Total.
Bergen.....			6	8	14
Essex.....			14	10	24
Hudson.....			13	13	26
Hunterdon.....			7	9	16
Morris.....			8	12	20
Passaic.....			10	22	32
Sussex.....			2	4	6
Union.....			17	18	35
Warren.....			11	6	17
Middlesex.....			1	1	2
Total of persons.....			89	103	192

TABLE VIII.
CIVIL CONDITION OF PERSONS ADMITTED.

NUMBER OF THE ADMISSION.	UNMARRIED.			MARRIED.			WIDOWED.			DIVORCED.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
First.....	36	40	76	43	28	71	1	18	19	1	.....	1
Second.....	2	3	10	3	8	11	1	.....	1	.....	.....	.....
Third.....	.....	1	1	1	.....	1	.....	.....	.....	.....	.....	.....
Ninth.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total of persons....	39	49	88	47	36	83	2	18	20	1	.....	1

(5)

TABLE IX.
OCCUPATION OF PERSONS ADMITTED.

Males.

Bookkeeper.....	1
Bank cashier.....	1
Butcher.....	1
Brass worker.....	1
Clerks.....	3
Curriers.....	2
Carpenters.....	2
Civil engineers.....	3
Cigarmaker.....	1
Collector.....	1
Cooper.....	1
Draughtsman.....	1
Engravers.....	2
Farm laborers.....	2
Farmers.....	8
Factory hands.....	2
Grocer.....	1
Glazier.....	1
Hostlers.....	2
Harnessmaker.....	1
Hatter.....	1
Inventer.....	1
Iron turner.....	1
Jeweler.....	1
Leather finisher.....	1
Laborers.....	10
Manufacturers.....	3
Musician.....	1
Miner.....	2
Moulder.....	1
Machinist.....	1
Mechanic.....	1
Miller.....	1
Merchants.....	2
None.....	6
Peddlers.....	2
Physician.....	1
Real estate agent.....	1
Seedsmen.....	1
Silk weaver.....	1
Silk spinner.....	1
Seaman.....	1
Switch tender.....	1
Stone mason.....	1
School boys.....	2
Tailors.....	3
Telegraph operator.....	1
Teamster.....	1
Tramp.....	1
Yard master.....	1
 Total.....	89

TABLE IX.—CONTINUED.

Females.

Bookkeepers' wives.....	2
Buttonhole maker.....	1
Boarding house keeper.....	1
Blacksmiths' wives.....	3
Baker's wife.....	1
Butcher's wife.....	1
Cotton spinner's wife.....	1
Carriage smith's wife.....	1
Carpenter's wife.....	1
Domestics	14
Dressmaker.....	1
Expressman's wife.....	1
Farmers' wives.....	6
Gardener's wife.....	1
Grocer's wife.....	1
Hostler's wife.....	1
Housewives.....	7
Housework	22
Iron worker's wife.....	1
Janitor's wife.....	1
Laborers' wives.....	3
Merchants' wives.....	2
Mill forewoman.....	1
Mill operatives.....	2
Nurse.....	1
None.....	8
Physician's wife.....	1
Painter's wife.....	1
Saleswoman.....	1
School girls.....	3
Seamstresses.....	5
Silk weaver.....	1
Silk weaver's wife.....	1
Silk manufacturer's wife.....	1
Salesman's wife.....	1
Stone cutter's wife.....	1
Ticket agent's wife.....	1
Weaver.....	1
 Total.....	 103

TABLE X.

REPORTED DURATION OF INSANITY BEFORE LAST ADMISSION.

PREVIOUS DURATION.	FIRST ADMISSION TO ANY HOSPITAL.			ALL OTHER ADMISSIONS.			TOTAL.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Congenital.....	1	1	2	...	...	...	1	1	2
Under one month.....	18	11	24	1	2	3	14	13	27
From one to three months.....	9	11	20	2	8	10	11	19	30
From three to six months.....	12	9	21	2	...	2	14	9	23
From six to twelve months.....	6	7	13	2	2	4	8	9	17
From one to two years.....	10	8	18	3	1	4	13	9	22
From two to five years.....	4	17	21	1	4	5	5	21	26
From five to ten years.....	2	5	7	4	2	6	6	7	13
From ten to twenty years.....	4	5	9	2	5	7	6	10	16
Over twenty years.....	1	1	2	3	1	4	4	2	6
Unknown.....	5	2	7	2	1	3	7	3	10
Total of cases.....	67	77	144	22	26	48	89	103	192
Total of persons	67	77	144	22	26	48	89	103	192

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TABLE XI.
FORM OF DISEASE IN CASES ADMITTED.

FORM OF DISEASE.	Males.	Females.	Total.
Melancholia—Passiva.....	21	35	56
" —Attonita.....	2	.....	2
Mania—Exatation.....	7	11	18
" —Frenzy.....	.....	3	3
Secondary monomania.....	5	8	13
Terminal Dementia—Agitata.....	2	2	4
" —Apathetica.....	4	2	6
Primary monomania.....	18	21	39
Moral insanity.....	.....	1	1
Epileptic insanity.....	4	5	9
Choreic insanity.....	1	.....	1
Hysterical insanity.....	.....	3	3
Periodical insanity.....	.....	1	1
Hypochondriacal insanity.....	1	1	2
General paresis.....	6	1	7
Chronic alcoholism.....	7	1	8
Senile dementia.....	6	3	9
Acute alcoholism.....	1	.....	1
Dementia after cerebral haemorrhage.....	1	2	3
Dementia after injury to the head.....	1	1	2
Imbecility.....	2	2	4
Total of cases.....	89	103	192
Total of persons.....	89	103	192

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TABLE XII.
PROBABLE CAUSES OF INSANITY IN CASES ADMITTED.

CAUSES.	Males.	Females.	Total.
Moral—			
Domestic troubles, etc.....	7	6	13
Adverse circumstances, etc.....	4	3	7
Worry, etc.....	3	3	6
Overwork, etc.....	3	4	7
Love affairs, etc.....	1	3	4
Fright and nervous shock.....		4	4
Physical—			
Intemperance, general.....	3	3	3
in drink.....	11	1	12
Pregnancy.....		1	1
Puberty.....		1	1
Old age.....	5	3	8
Puerperal state.....		2	2
Lactation.....		5	5
Change of life.....		5	5
Masturbation.....	8	2	10
Insolation.....	1		1
Ill health.....	2	19	21
Privation, etc.....		1	1
Hereditary influence ascertained.....	6	6	12
Congenital defect, etc.....	1	2	3
Injury to head.....	1	1	2
Cerebral haemorrhage.....	1	2	3
Chorea.....	1		1
Syphilis.....	1		1
Infantile convulsions.....	1		1
Disease of heart.....	1		1
Epilepsy.....	4	5	9
Over exertion.....	1	4	5
Uterine disease.....		1	1
Acute meningoitis.....		1	1
Unknown.....	23	18	41
Total.....	89	103	192

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TABLE XIII.

HOW SUPPORTED.	PATIENTS ADMITTED.		
	Males.	Females	Total.
State.....	7	1	8
County.....	53	71	124
Private.....	29	31	60
Totals.....	89	108	192

TABLE XIV.

DISCHARGES CLASSIFIED BY ADMISSION AND RESULT.

ADMISSION.	RECOVERED			MUCH IMPROVED.			IMPROVED.			UNIMPROVED.			DIED.			TOTALS.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
First.....	12	22	34	9	7	16	10	4	14	11	8	19	31	27	58	73	68	141
Second.....	2	4	6	1	2	3	1	1	2	...	...	...	1	1	2	5	8	13
Third.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Eighth.....	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1
Total of cases....	14	26	40	11	9	20	12	5	17	11	8	19	32	28	60	80	76	156
Total of persons..	14	25	39	11	9	20	12	5	17	11	8	19	32	28	60	90	75	155

TABLE XV.
CASES DISCHARGED RECOVERED—DURATION.

PERIOD.	DURATION BEFORE ADMISSION.			HOSPITAL RESIDENCE.			WHOLE DU- RATION FROM THE ATTACK.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under one month.....	9	8	17	1	...	1	1	...	1
From one to three months.....	2	7	9	7	2	9	4	...	4
From three to six months.....	2	4	6	2	8	10	4	5	9
From six to twelve months.....	...	3	3	...	9	9	1	8	9
From one to two years.....	...	2	2	3	5	8	1	5	6
From two to five years.....	1	2	3	1	1	2	8	7	10
From five to ten years.....	...	...	...	...	1	1	...	1	1
From ten to twenty years.....	...	...	...	...	...	...	...	...	...
Total of cases.....	14	26	40	14	26	40	14	26	40
Total of Persons	14	25	39	14	25	39	14	25	39
Average of known cases (in months)	2.8	4.6	4.0	7.5	12.4	10.7	10.3	17.0	14.7

TABLE XVI.
CASES RESULTING IN DEATH—DURATION.

PERIOD.	DURATION BEFORE ADMISSION.			HOSPITAL RESIDENCE.			WHOLE DURA- TION FROM THE ATTACK.		
	Males	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Congenital.....									
Under one month.....	4	3	7	2	2	4	1	2	3
From one to three months.....	2	2	4	2	3	5	2	3	5
From three to six months.....		1	1	1	2	3	2	2	4
From six to twelve months.....	3	1	4	6	4	10	2	2	4
From one to two years.....	8	5	13	3	2	5	6	6	12
From two to five years.....	4	5	9	8	3	11	3	6	9
From five to ten years.....	4	4	8	7	7	14	7	4	11
From ten to twenty years.....	5	3	8	3	5	8	6	6	12
Over twenty years.....		2	2				3	3	6
Unknown.....	2	2	4				2	2	4
Total of Cases.....	32	28	60	32	28	60	32	28	60
Average of unknown cases (in m'ths)	47.5	58.9	52.7	41.8	50.8	45.6	88.8	109.7	98.8

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TABLE XVII.

SHOWING THE DURATION OF INSANITY ON ADMISSION IN THE ADMISSIONS, DISCHARGES AND DEATHS DURING THE YEAR 1885-6.

CLASS.	ADMISSIONS.			DISCHARGES.						DEATHS.		
				RECOVERED.			REMOVED, IMPROVED OR OTHERWISE.					
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
First class—												
First attack and within 3 months on admission.	20	22	42	9	8	17	5	4	9	5	5	10
Second class—												
First attack above 3 and within 12 months on admission.....	16	15	31	1	5	6	5	4	9	3	1	4
Third class—												
Not first attack and within 12 months on admission.....	11	13	24	3	9	12	3	6	9	1	1	2
Fourth class—												
First attack or not, but of more than 12 months on admission.....	81	49	80	1	4	5	20	7	27	21	19	40
Fifth class—												
Congenital.....	2	1	3	.....	.....	.....	1	.....	1	.....	.....	.....
Unknown.....	9	8	12	.....	.....	.....	1	1	2	2	2	4
Total.....	89	103	192	14	26	40	34	22	56	32	28	60

TABLE XVIII.

CASES DISCHARGED BY RECOVERY OR DEATH.—FORM OF INSANITY.

FORM OF INSANITY.	RECOVERIES.			DEATHS.		
	Males.	Females.	Total.	Males.	Females.	Total.
Melancholia—Passiva.....	6	14	20	3	6	9
Mania—Exaltation.....	3	10	13	1	.....	1
Frenzy.....	1	1	.....	.....	1	1
Secondary Monomania.....	.....	.....	.....	1	.....	1
Terminal Dementia—Agitata.....	.....	.....	.....	.....	1	1
Apathetica.....	.....	.....	.....	8	14	22
Primary Monomania.....	.....	.....	.....	1	.....	1
Epileptic insanity.....	1	.....	1	2	3	4
Hysterical insanity.....	.....	1	1	.....	.....	.....
Periodical paresis.....	.....	.....	.....	3	.....	3
General paresis.....	.....	.....	.....	7	.....	7
Senile Dementia.....	.....	.....	.....	3	8	6
Dementia after injury to head.....	.....	.....	.....	1	.....	1
Dementia after cerebral haemorrhage.....	.....	.....	.....	2	1	3
Insanity of opium.....	1	.....	1	.....	.....	.....
Chronic alcoholism.....	2	.....	2	.....	.....	.....
Acute alcoholism.....	1	.....	1	.....	.....	.....
Total cases.....	14	26	40	32	28	60

TABLE XIX.
CAUSES OF DEATH.

CAUSES.	Males.	Females.	Total
Brain disease with enteritis.....	2	3	5
Brain disease with senile decay.....	1	.....	1
Brain disease with urethritis.....	1	.....	1
Brain softening.....	1	.....	1
Brain disease and exhaustion from maniacal excitement in course of terminal dementia.....	1	.....	1
Carcinoma of stomach, interstitial nephritis and valvular disease of heart, atheroma of arteries and brain disease.....	1	.....	1
Cerebral hemorrhage.....	3	2	5
Dysentery with brain disease.....	.....	3	3
Exhaustion of melancholia.....	2	4	6
Exhaustion from chronic brain disease.....	2	3	5
Exhaustion of epilepsy.....	.....	2	2
Exhaustion of maniacal frenzy.....	.....	1	1
Exhaustion with brain disease and diarrhoea.....	.....	3	3
Entiretis and pneumonia with brain disease.....	1	.....	1
Epilepsy with abscess of hand.....	1	.....	1
General paresis with exhaustion.....	4	.....	4
" " paretic seizure.....	1	.....	1
" " congestive apoplexy.....	1	.....	1
Heart disease with brain disease.....	2	2	4
Lencocytæmia.....	1	.....	1
Phthisis pulmonetis and pulmonary haemorrhage with brain disease.....	1	.....	1
Phthisis pulmonalis with brain disease.....	2	1	3
Pneumonia croupous with brain disease.....	4	3	7
Renal and cardiac disease with brain disease.....	.....	1	1
Status epilepticus.....	1	.....	1
Totals.....	32	28	60

TABLE XX.

AGES OF THOSE WHO DIED.

AGES.	AT TIME OF FIRST ATTACK.			AT TIME OF DEATH.		
	Males.	Females.	Total.	Males.	Females.	Total.
Fifteen years and less.....						
From 15 to 20 years.....	1		1			
" 20 to 25 "	2	2	4	1		1
" 25 to 30 "	1	3	4			
" 30 to 35 "	3	2	5	3	3	6
" 35 to 40 "		3	3	2	1	3
" 40 to 50 "	9	5	14	8	6	14
" 50 to 60 "	10	5	15	7	7	14
" 60 to 70 "	1	2	3	5	5	10
" 70 to 80 "	2	2	4	5	5	10
Over eighty years.....						
Unknown.....	3	4	7			
Totals.....	32	28	60	32	28	60

EXTRACT FROM THE BY-LAWS.

ADMISSION OF PATIENTS.

ORDER OF WARRANT FILED.

1. Whenever a patient is sent to the Asylum by the order of any court, justice or judge, the order or warrant, or a copy thereof, by which such person is sent shall be lodged with the Medical Director.

CLEANLINESS.

2. Each patient, before admission, shall be made perfectly clean, and be free from vermin or any contagious or infectious disease.

CLOTHING FOR MEN.

3. Each male patient shall be provided with at least two shirts, a new and substantial coat, vest and pantaloons, of strong woolen cloth, two pair of socks, a black cravat, a good hat or cap, and a pair of new shoes or boots, together with a comfortable outside garment.

CLOTHING FOR WOMEN.

4. Each female patient, in addition to the same quantity of under-garments, shoes and stockings, shall have a flannel petticoat, two good dresses, also a cloak or other outside garment. In case the patient is so much excited as not to admit of being thus clothed, other clothing that can be kept on, that is comfortable and in sufficient quantity, with a change thereof may be substituted.

It is very desirable that extra and better apparel should be sent with those accustomed to it, that when they become better, and when they attend religious worship, walk or ride out, their self-respect may be preserved.

In all cases the patient's best clothing should be sent; it will be

carefully preserved, and only used when deemed necessary for the purposes above mentioned.

JEWELRY, ETC.

5. Jewelry and all superfluous articles of dress, knives, etc., should be left at home, as they are liable to be lost.

HISTORY OF CASE.

6. A written history of the case should be sent with the patient, and, if possible, some one acquainted with him should accompany him to the Asylum, from whom minute, but often essential, particulars may be learned.

TERMS OF ADMISSION.

7. The price of board, including washing and attendance, for all who are supported at public charge, is three dollars per week. For private patients, or those supported by themselves or friends, the price varies from five to ten dollars, according to the trouble and expense incurred, and according to their ability to pay. Higher prices are paid by a special agreement with the Warden for extra attention and accommodations. Payments required to be made quarterly in advance, from date of admission.

BOND, ETC.

8. A bond, with satisfactory sureties, will be required for the payment of the board and expenses and for the removal of the patient when discharged, of all persons except those sent at the expense of the counties.

Those who bring friends should be prepared to give such a bond, and, *if strangers, bring evidence of their responsibility.*

FORMS AND DIRECTIONS

FOR THE ADMISSION, ETC., OF PRIVATE INSANE PATIENTS.

FORM OF REQUEST.

The undersigned, of the ____ of ____, in the county of ____, is desirous of placing in the "State Asylum for the Insane, at Morristown, N. J.," and hereby requests the admission therein of ____, a resident of the ____ of ____, who is aged ____ years, and has been ____, is a native of ____, in the State of ____, and is ____ of the undersigned.

Dated ____, 18____.

FORM OF CERTIFICATE OF INSANITY BY A PHYSICIAN.

_____, 18____.

I, ____, physician of the township of ____, in the county of ____, do certify under oath that I have examined into the state of health and mental condition of ____, of the township of ____, in the county of ____, and that ____ is, in my opinion, insane, and a fit subject to be sent to the State Asylum for the Insane.

Sworn to and subscribed before me this ____ day of ____ A. D.
18____.

(6)

FORM OF BOND.

Whereas, —, of —, in the county of —, an insane person, has been admitted as a patient into "The State Asylum for the Insane at Morristown, N. J., now, therefore,

We, the undersigned, in consideration thereof, jointly and severally bind ourselves to —, Treasurer of said Asylum, to pay to him and his successors in office, the sum of — dollars and — cents per week for the care and board of said insane person, as long as — shall continue in said Asylum, with such extra charges as may be occasioned by — requiring more than ordinary care and attention; and, also, to provide — with suitable clothing, and pay for all such necessary articles of clothing as shall be procured for — by the Warden of the Asylum; and to remove — from the Asylum whenever the room occupied by — shall be required for a class of patients having preference by law, or whenever — shall be required to be removed by the Managers; and, also, to pay all expenses incurred by the Managers or Warden in sending said patient to — friends, in case one or either of us shall fail to remove said patient when required to do so as aforesaid; and if — shall be removed at the request of — friends before the expiration of six calendar months after reception, then to pay board for twenty-six weeks, unless — shall be sooner cured; and also, to pay, not exceeding fifty dollars, for all damages — may do to the furniture or other property of said Asylum, and for reasonable charges in cases of elopement, and funeral charges in case of death; such payments for board and clothing to be made quarterly in advance, from date of admission, and at the time of removal, with interest on each bill from and after it becomes due.

In witness whereof we have hereunto set our names this — day of —, in the year 18—.

Name, Residence, P. O. Address.

Name, Residence, P. O. Address.

Signed and sealed in the presence —.

FORMS AND DIRECTIONS

FOR THE ADMISSION, ETC., OF INDIGENT AND PAUPER INSANE PATIENTS.

FORM OF ORDER, ETC., FOR JUDGE.

I, A. B., one of the Judges of the Court of Common Pleas of the county of _____, and State of New Jersey, do hereby report that application has been made to me on behalf of C. D., a resident of the [township, ward or borough] of _____, in said county, alleged to be insane, [and in indigent circumstances or a pauper, as the case may be,] and that pursuant to the Act of the Legislature in such cases made and provided, I have called before me Dr. _____, a respectable physician, and other credible witnesses, to wit, [state their names,] and having examined them and fully investigated the case, and not deeming it necessary to call a jury, I do hereby decide and certify that satisfactory proof has been adduced before me showing the said C. D. to be an insane person, and that _____ has not sufficient estate to support _____ under said visitation of insanity.

Given under my hand at _____, in the county and State aforesaid, this _____ day of _____, in the year of our Lord one thousand eight hundred and _____.

A. B.

CERTIFICATE OF PHYSICIAN.

_____ County, ss.—I, A. B., being duly sworn according to law, do certify and declare that I have examined into the state of health and mental condition of C. D., of the [township, ward or borough] of _____, of said county of _____, and that I am of opinion that _____ is insane.

A. B., *Physician.*

Sworn and subscribed before me this _____ day of _____, A. D., 18—.

A. B., *Judge, etc.*

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The Chosen Freeholder or Freeholders of the township, ward or borough must then endorse the above order and certificate as follows: "Approved," and sign his or their names as the Chosen Freeholder or Freeholders of the [township, ward or borough] of —, and county of —.

CERTIFICATE OF THE COUNTY CLERK.

State of New Jersey, } ss.
— County.

I, A. B., Clerk of the county of —, do hereby certify that the foregoing is a true copy of the report and certificate of —, one of the Judges of the Court of Common Pleas of said county, in the case of —, and also the certificate of Dr. —, thereunto appended, as filed in my office; that the foregoing is a true copy of the indorsement thereon, and that [A. B. and C. D.] whose name — signed to the said endosal of approval, — member of the Board of Chosen Freeholders of said [township, ward or borough] in said county, and that said signature — is in — proper handwriting.

In witness whereof I have hereunto set my hand and seal of office at —, this — day of — A. D. 18—.

A. B., Clerk.

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